

14-03 WO.sequence listing.txt  
SEQUENCE LISTING

<110> University of Georgia Research Foundation, Inc  
Mohnen, Debra  
Hahn, Michael G.  
Kolli, Venkata S.K.  
Doong, Ron L.  
Sterling, Jason D.

<120> Galacturonosyltransferases, nucleic acids encoding same, and uses therefor

<130> 14-03 WO

<140> Not assigned

<141> 2004-02-05

<150> US 60/445,539

<151> 2003-02-06

<160> 50

<170> PatentIn version 3.2

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<212> DNA  
<213> Arabidopsis thaliana

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<211> 673  
<212> PRT  
<213> *Arabidopsis thaliana*

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Phe Ala Pro Leu Cys Phe Phe Val Gly Arg Gly Val Tyr Ile Asp Ser  
35 40 45

Ser Asn Asp Tyr Ser Ile Val Ser Val Lys Gln Asn Leu Asp Trp Arg  
50 55 60

Glu Arg Leu Ala Met Gln Ser Val Arg Ser Leu Phe Ser Lys Glu Ile  
65 70 75 80

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Leu Asp Val Ile Ala Thr Ser Thr Ala Asp Leu Gly Pro Leu Ser Leu  
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Asp Ser Phe Lys Lys Asn Asn Leu Ser Ala Ser Trp Arg Gly Thr Gly  
100 105 110

Val Asp Pro Ser Phe Arg His Ser Glu Asn Pro Ala Thr Pro Asp Val  
115 120 125

Lys Ser Asn Asn Leu Asn Glu Lys Arg Asp Ser Ile Ser Lys Asp Ser  
130 135 140

Ile His Gln Lys Val Glu Thr Pro Thr Lys Ile His Arg Arg Gln Leu  
145 150 155 160

Arg Glu Lys Arg Arg Glu Met Arg Ala Asn Glu Leu Val Gln His Asn  
165 170 175

Asp Asp Thr Ile Leu Lys Leu Glu Asn Ala Ala Ile Glu Arg Ser Lys  
180 185 190

Ser Val Asp Ser Ala Val Leu Gly Lys Tyr Ser Ile Trp Arg Arg Glu  
195 200 205

Asn Glu Asn Asp Asn Ser Asp Ser Asn Ile Arg Leu Met Arg Asp Gln  
210 215 220

Val Ile Met Ala Arg Val Tyr Ser Gly Ile Ala Lys Leu Lys Asn Lys  
225 230 235 240

Asn Asp Leu Leu Gln Glu Leu Gln Ala Arg Leu Lys Asp Ser Gln Arg  
245 250 255

Val Leu Gly Glu Ala Thr Ser Asp Ala Asp Leu Pro Arg Ser Ala His  
260 265 270

Glu Lys Leu Arg Ala Met Gly Gln Val Leu Ala Lys Ala Lys Met Gln  
275 280 285

Leu Tyr Asp Cys Lys Leu Val Thr Gly Lys Leu Arg Ala Met Leu Gln  
290 295 300

Thr Ala Asp Glu Gln Val Arg Ser Leu Lys Lys Gln Ser Thr Phe Leu  
305 310 315 320

Ala Gln Leu Ala Ala Lys Thr Ile Pro Asn Pro Ile His Cys Leu Ser  
325 330 335

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Met Arg Leu Thr Ile Asp Tyr Tyr 340 345 Leu Leu Ser Pro Glu Lys Arg Lys 350

Phe Pro Arg Ser Glu Asn Leu Glu Asn Pro Asn Leu Tyr His Tyr Ala 355 360 365

Leu Phe Ser Asp Asn Val Leu Ala Ala Ser Val Val Val Asn Ser Thr 370 375 380

Ile Met Asn Ala Lys Asp Pro Ser Lys His Val Phe His Leu Val Thr 385 390 395 400

Asp Lys Leu Asn Phe Gly Ala Met Asn Met Trp Phe Leu Leu Asn Pro 405 410 415

Pro Gly Lys Ala Thr Ile His Val Glu Asn Val Asp Glu Phe Lys Trp 420 425 430

Leu Asn Ser Ser Tyr Cys Pro Val Leu Arg Gln Leu Glu Ser Ala Ala 435 440 445

Met Arg Glu Tyr Tyr Phe Lys Ala Asp His Pro Thr Ser Gly Ser Ser 450 455 460

Asn Leu Lys Tyr Arg Asn Pro Lys Tyr Leu Ser Met Leu Asn His Leu 465 470 475 480

Arg Phe Tyr Leu Pro Glu Val Tyr Pro Lys Leu Asn Lys Ile Leu Phe 485 490 495

Leu Asp Asp Asp Ile Ile Val Gln Lys Asp Leu Thr Pro Leu Trp Glu 500 505 510

Val Asn Leu Asn Gly Lys Val Asn Gly Ala Val Glu Thr Cys Gly Glu 515 520 525

Ser Phe His Arg Phe Asp Lys Tyr Leu Asn Phe Ser Asn Pro His Ile 530 535 540

Ala Arg Asn Phe Asn Pro Asn Ala Cys Gly Trp Ala Tyr Gly Met Asn 545 550 555 560

Met Phe Asp Leu Lys Glu Trp Lys Lys Arg Asp Ile Thr Gly Ile Tyr 565 570 575

His Lys Trp Gln Asn Met Asn Glu Asn Arg Thr Leu Trp Lys Leu Gly 580 585 590

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Thr Leu Pro Pro Gly Leu Ile Thr Phe Tyr Gly Leu Thr His Pro Leu  
595 600 605

Asn Lys Ala Trp His Val Leu Gly Leu Gly Tyr Asn Pro Ser Ile Asp  
610 615 620

Lys Lys Asp Ile Glu Asn Ala Ala Val Val His Tyr Asn Gly Asn Met  
625 630 635 640

Lys Pro Trp Leu Glu Leu Ala Met Ser Lys Tyr Arg Pro Tyr Trp Thr  
645 650 655

Lys Tyr Ile Lys Phe Asp His Pro Tyr Leu Arg Arg Cys Asn Leu His  
660 665 670

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<210> 3  
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agattgggtc agctaaggag	tctcaagaga ggaaattttg	ataccaatgc ttgtctctgg	1500
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<212> PRT  
<213> *Arabidopsis thaliana*

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Met Leu Val Pro Leu Ala Phe Leu Leu Gly Leu His Asn Gly Phe His  
35               40               45

Ser Pro Gly Phe Val Thr Val Gln Pro Ala Ser Ser Phe Glu Ser Phe  
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Thr Arg Ile Asn Ala Thr Lys His Thr Gln Arg Asp Val Ser Glu Arg  
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Val Asp Glu Val Leu Gln Lys Ile Asn Pro Val Leu Pro Lys Lys Ser  
85               90               95

14-03 WO.sequence listing.txt  
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115 120 125  
  
Ser Pro Ala Asn Lys Thr Lys Ser Glu Ala Ser Tyr Thr Gly Val Gln  
130 135 140  
  
Arg Lys Ile Val Ser Gly Asp Glu Thr Trp Arg Thr Cys Glu Val Lys  
145 150 155 160  
  
Tyr Gly Ser Tyr Cys Leu Trp Arg Glu Glu Asn Lys Glu Pro Met Lys  
165 170 175  
  
Asp Ala Lys Val Lys Gln Met Lys Asp Gln Leu Phe Val Ala Arg Ala  
180 185 190  
  
Tyr Tyr Pro Ser Ile Ala Lys Met Pro Ser Gln Ser Lys Leu Thr Arg  
195 200 205  
  
Asp Met Lys Gln Asn Ile Gln Glu Phe Glu Arg Ile Leu Ser Glu Ser  
210 215 220  
  
Ser Gln Asp Ala Asp Leu Pro Pro Gln Val Asp Lys Lys Leu Gln Lys  
225 230 235 240  
  
Met Glu Ala Val Ile Ala Lys Ala Lys Ser Phe Pro Val Asp Cys Asn  
245 250 255  
  
Asn Val Asp Lys Lys Leu Arg Gln Ile Leu Asp Leu Thr Glu Asp Glu  
260 265 270  
  
Ala Ser Phe His Met Lys Gln Ser Val Phe Leu Tyr Gln Leu Ala Val  
275 280 285  
  
Gln Thr Met Pro Lys Ser Leu His Cys Leu Ser Met Arg Leu Thr Val  
290 295 300  
  
Glu His Phe Lys Ser Asp Ser Leu Glu Asp Pro Ile Ser Glu Lys Phe  
305 310 315 320  
  
Ser Asp Pro Ser Leu Leu His Phe Val Ile Ile Ser Asp Asn Ile Leu  
325 330 335  
  
Ala Ser Ser Val Val Ile Asn Ser Thr Val Val His Ala Arg Asp Ser  
340 345 350

## 14-03 WO.sequence listing.txt

Lys Asn Phe Val Phe His Val Leu Thr Asp Glu Gln Asn Tyr Phe Ala  
355 360 365

Met Lys Gln Trp Phe Ile Arg Asn Pro Cys Lys Gln Ser Thr Val Gln  
370 375 380

Val Leu Asn Ile Glu Lys Leu Glu Leu Asp Asp Ser Asp Met Lys Leu  
385 390 395 400

Ser Leu Ser Ala Glu Phe Arg Val Ser Phe Pro Ser Gly Asp Leu Leu  
405 410 415

Ala Ser Gln Gln Asn Arg Thr His Tyr Leu Ser Leu Phe Ser Gln Ser  
420 425 430

His Tyr Leu Leu Pro Lys Leu Phe Asp Lys Leu Glu Lys Val Val Ile  
435 440 445

Leu Asp Asp Asp Val Val Gln Arg Asp Leu Ser Pro Leu Trp Asp  
450 455 460

Leu Asp Met Glu Gly Lys Val Asn Gly Ala Val Lys Ser Cys Thr Val  
465 470 475 480

Arg Leu Gly Gln Leu Arg Ser Leu Lys Arg Gly Asn Phe Asp Thr Asn  
485 490 495

Ala Cys Leu Trp Met Ser Gly Leu Asn Val Val Asp Leu Ala Arg Trp  
500 505 510

Arg Ala Leu Gly Val Ser Glu Thr Tyr Gln Lys Tyr Tyr Lys Glu Met  
515 520 525

Ser Ser Gly Asp Glu Ser Ser Glu Ala Ile Ala Leu Gln Ala Ser Leu  
530 535 540

Leu Thr Phe Gln Asp Gln Val Tyr Ala Leu Asp Asp Lys Trp Ala Leu  
545 550 555 560

Ser Gly Leu Gly Tyr Asp Tyr Tyr Ile Asn Ala Gln Ala Ile Lys Asn  
565 570 575

Ala Ala Ile Leu His Tyr Asn Gly Asn Met Lys Pro Trp Leu Glu Leu  
580 585 590

Gly Ile Pro Asn Tyr Lys Asn Tyr Trp Arg Arg His Leu Ser Arg Glu  
595 600 605

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<400> 6

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20 25 30

Thr Pro Phe Ser Lys Arg Asp Phe Leu Glu Asp Val Thr Ala Leu Thr  
35 40 45

Phe Asn Ser Asp Glu Asn Arg Leu Asn Leu Leu Pro Arg Glu Ser Pro  
50 55 60

Ala Val Leu Arg Gly Gly Leu Val Gly Ala Val Tyr Ser Asp Lys Asn  
65 70 75 80

Ser Arg Arg Leu Asp Gln Leu Ser Ala Arg Val Leu Ser Ala Thr Asp  
85 90 95

Asp Asp Thr His Ser His Thr Asp Ile Ser Ile Lys Gln Val Thr His  
100 105 110

Asp Ala Ala Ser Asp Ser His Ile Asn Arg Glu Asn Met His Val Gln  
115 120 125

Leu Thr Gln Gln Thr Ser Glu Lys Val Asp Glu Gln Pro Glu Pro Asn  
130 135 140

Ala Phe Gly Ala Lys Lys Asp Thr Gly Asn Val Leu Met Pro Asp Ala  
145 150 155 160

Gln Val Arg His Leu Lys Asp Gln Leu Ile Arg Ala Lys Val Tyr Leu  
165 170 175

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Ser Leu Pro Ser Ala Lys Ala Asn Ala His Phe Val Arg Glu Leu Arg  
180 185 190

Leu Arg Ile Lys Glu Val Gln Arg Ala Leu Ala Asp Ala Ser Lys Asp  
195 200 205

Ser Asp Leu Pro Lys Thr Ala Ile Glu Lys Leu Lys Ala Met Glu Gln  
210 215 220

Thr Leu Ala Lys Gly Lys Gln Ile Gln Asp Asp Cys Ser Thr Val Val  
225 230 235 240

Lys Lys Leu Arg Ala Met Leu His Ser Ala Asp Glu Gln Leu Arg Val  
245 250 255

His Lys Lys Gln Thr Met Phe Leu Thr Gln Leu Thr Ala Lys Thr Ile  
260 265 270

Pro Lys Gly Leu His Cys Leu Pro Leu Arg Leu Thr Thr Asp Tyr Tyr  
275 280 285

Ala Leu Asn Ser Ser Glu Gln Gln Phe Pro Asn Gln Glu Lys Leu Glu  
290 295 300

Asp Thr Gln Leu Tyr His Tyr Ala Leu Phe Ser Asp Asn Val Leu Ala  
305 310 315 320

Thr Ser Val Val Val Asn Ser Thr Ile Thr Asn Ala Lys His Pro Leu  
325 330 335

Lys His Val Phe His Ile Val Thr Asp Arg Leu Asn Tyr Ala Ala Met  
340 345 350

Arg Met Trp Phe Leu Asp Asn Pro Pro Gly Lys Ala Thr Ile Gln Val  
355 360 365

Gln Asn Val Glu Glu Phe Thr Trp Leu Asn Ser Ser Tyr Ser Pro Val  
370 375 380

Leu Lys Gln Leu Ser Ser Arg Ser Met Ile Asp Tyr Tyr Phe Arg Ala  
385 390 395 400

His His Thr Asn Ser Asp Thr Asn Leu Lys Phe Arg Asn Pro Lys Tyr  
405 410 415

Leu Ser Ile Leu Asn His Leu Arg Phe Tyr Leu Pro Glu Ile Phe Pro  
420 425 430

## 14-03 WO.sequence listing.txt

Lys Leu Ser Lys Val Leu Phe Leu Asp Asp Asp Ile Val Val Gln Lys  
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Asp Leu Ser Gly Leu Trp Ser Val Asp Leu Lys Gly Asn Val Asn Gly  
 450 455 460 465

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 465 470 475 480

Asn Phe Ser Asn Pro Leu Ile Ser Lys Asn Phe Asp Pro Arg Ala Cys  
 485 490 495

Gly Trp Ala Tyr Gly Met Asn Val Phe Asp Leu Asp Glu Trp Lys Arg  
 500 505 510

Gln Asn Ile Thr Glu Val Tyr His Arg Trp Gln Asp Leu Asn Gln Asp  
 515 520 525

Arg Glu Leu Trp Lys Leu Gly Thr Leu Pro Pro Gly Leu Ile Thr Phe  
 530 535 540

Trp Arg Arg Thr Tyr Pro Leu Asp Arg Lys Trp His Ile Leu Gly Leu  
 545 550 555 560

Gly Tyr Asn Pro Ser Val Asn Gln Arg Asp Ile Glu Arg Ala Ala Val  
 565 570 575

Ile His Tyr Asn Gly Asn Leu Lys Pro Trp Leu Glu Ile Gly Ile Pro  
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Arg Tyr Arg Gly Phe Trp Ser Lys His Val Asp Tyr Glu His Val Tyr  
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Leu Arg Glu Cys Asn Ile Asn Pro  
 610 615

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gacattggaa	aagagaatttac	caaacgttac	tggAACATAC	acgtccctta	ccatcacacc	1740
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## 14-03 WO.sequence Listing.txt

Ser Ile Ser Val Phe Ala Pro Leu Ile Phe Val Ser Asn Arg Leu Lys  
20 25 30

Ser Ile Thr Pro Val Gly Arg Arg Glu Phe Ile Glu Glu Leu Ser Lys  
35 40 45

Ile Arg Phe Thr Thr Asn Asp Leu Arg Leu Ser Ala Ile Glu His Glu  
50 55 60

Asp Gly Glu Gly Leu Lys Gly Pro Arg Leu Ile Leu Phe Lys Asp Gly  
65 70 75 80

Glu Phe Asn Ser Ser Ala Glu Ser Asp Gly Gly Asn Thr Tyr Lys Asn  
85 90 95

Arg Glu Glu Gln Val Ile Val Ser Gln Lys Met Thr Val Ser Ser Asp  
100 105 110

Glu Lys Gly Gln Ile Leu Pro Thr Val Asn Gln Leu Ala Asn Lys Thr  
115 120 125

Asp Phe Lys Pro Pro Leu Ser Lys Gly Glu Lys Asn Thr Arg Val Gln  
130 135 140

Pro Asp Arg Ala Thr Asp Val Lys Thr Lys Glu Ile Arg Asp Lys Ile  
145 150 155 160

Ile Gln Ala Lys Ala Tyr Leu Asn Phe Ala Pro Pro Gly Ser Asn Ser  
165 170 175

Gln Val Val Lys Glu Leu Arg Gly Arg Leu Lys Glu Leu Glu Arg Ser  
180 185 190

Val Gly Asp Ala Thr Lys Asp Lys Asp Leu Ser Lys Gly Ala Leu Arg  
195 200 205

Arg Val Lys Pro Met Glu Asn Val Leu Tyr Lys Ala Ser Arg Val Phe  
210 215 220

Asn Asn Cys Pro Ala Ile Ala Thr Lys Leu Arg Ala Met Asn Tyr Asn  
225 230 235 240

Thr Glu Glu Gln Val Gln Ala Gln Lys Asn Gln Ala Ala Tyr Leu Met  
245 250 255

Gln Leu Ala Ala Arg Thr Thr Pro Lys Gly Leu His Cys Leu Ser Met  
260 265 270

## 14-03 WO.sequence listing.txt

Arg Leu Thr Ser Glu Tyr Phe Ser Leu Asp Pro Glu Lys Arg Gln Met  
275 280 285

Pro Asn Gln Gln Asn Tyr Phe Asp Ala Asn Phe Asn His Tyr Val Val  
290 295 300

Phe Ser Asp Asn Val Leu Ala Ser Ser Val Val Val Asn Ser Thr Ile  
305 310 315 320

Ser Ser Ser Lys Glu Pro Glu Arg Ile Val Phe His Val Val Thr Asp  
325 330 335

Ser Leu Asn Tyr Pro Ala Ile Ser Met Trp Phe Leu Leu Asn Ile Gln  
340 345 350

Ser Lys Ala Thr Ile Gln Ile Leu Asn Ile Asp Asp Met Asp Val Leu  
355 360 365

Pro Arg Asp Tyr Asp Gln Leu Leu Met Lys Gln Asn Ser Asn Asp Pro  
370 375 380

Arg Phe Ile Ser Thr Leu Asn His Ala Arg Phe Tyr Leu Pro Asp Ile  
385 390 395 400

Phe Pro Gly Leu Asn Lys Met Val Leu Leu Asp His Asp Val Val Val  
405 410 415

Gln Arg Asp Leu Ser Arg Leu Trp Ser Ile Asp Met Lys Gly Lys Val  
420 425 430

Val Gly Ala Val Glu Thr Cys Leu Glu Gly Glu Ser Ser Phe Arg Ser  
435 440 445

Met Ser Thr Phe Ile Asn Phe Ser Asp Thr Trp Val Ala Gly Lys Phe  
450 455 460

Ser Pro Arg Ala Cys Thr Trp Ala Phe Gly Met Asn Leu Ile Asp Leu  
465 470 475 480

Glu Glu Trp Arg Ile Arg Lys Leu Thr Ser Thr Tyr Ile Lys Tyr Phe  
485 490 495

Asn Leu Gly Thr Lys Arg Pro Leu Trp Lys Ala Gly Ser Leu Pro Ile  
500 505 510

Gly Trp Leu Thr Phe Tyr Arg Gln Thr Leu Ala Leu Asp Lys Arg Trp  
Page 15

14-03 WO.sequence listing.txt  
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His Val Met Gly Leu Gly Arg Glu Ser Gly Val Lys Ala Val Asp Ile  
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Glu Gln Ala Ala Val Ile His Tyr Asp Gly Val Met Lys Pro Trp Leu  
 545            550            555            560

Asp Ile Gly Lys Glu Asn Tyr Lys Arg Tyr Trp Asn Ile His Val Pro  
 565            570            575

Tyr His His Thr Tyr Leu Gln Gln Cys Asn Leu Gln Ala  
 580            585

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14-03 WO.sequence listing.txt

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gctttggta tgaacgtttt tgatctgatc gcttggagga atgcaaacgt gactgctcg	1320
taccattact ggcaagatca gaacagagaa cgaacgcttt ggaaactcgg gacactccct	1380
ccaggtctac tatcttcata tggctcaca gagccactgg acagaagatg gcatgtcttg	1440
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tataatggta acatgaagcc ttggctaaag ctggctattg gtaggtataa acctttctgg	1560
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<211> 537

<212> PRT

<213> Arabidopsis thaliana

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35 40 45

Leu Leu Leu Glu Arg Asp Thr Arg Thr Glu Met Val Ser Pro Pro His  
50 55 60

Leu Asn Phe Thr Glu Glu Val Thr Ser Ala Ser Ser Phe Ser Arg Gln  
65 70 75 80

Leu Ala Glu Gln Met Thr Leu Ala Lys Ala Tyr Val Phe Ile Ala Lys  
85 90 95

Glu His Asn Asn Leu His Leu Ala Trp Glu Leu Ser Ser Lys Ile Arg  
100 105 110

Ser Cys Gln Leu Leu Leu Ser Lys Ala Ala Met Arg Gly Gln Pro Ile  
115 120 125

Ser Phe Asp Glu Ala Lys Pro Ile Ile Thr Gly Leu Ser Ala Leu Ile  
130 135 140

Tyr Lys Ala Gln Asp Ala His Tyr Asp Ile Ala Thr Thr Met Met Thr  
145 150 155 160

## 14-03 WO.sequence listing.txt

Met Lys Ser His Ile Gln Ala Leu Glu Glu Arg Ala Asn Ala Ala Thr  
165 170 175

Val Gln Thr Thr Ile Phe Gly Gln Leu Val Ala Glu Ala Leu Pro Lys  
180 185 190

Ser Leu His Cys Leu Thr Ile Lys Leu Thr Ser Asp Trp Val Thr Glu  
195 200 205

Pro Ser Arg His Glu Leu Ala Asp Glu Asn Arg Asn Ser Pro Arg Leu  
210 215 220

Val Asp Asn Asn Leu Tyr His Phe Cys Ile Phe Ser Asp Asn Val Ile  
225 230 235 240

Ala Thr Ser Val Val Val Asn Ser Thr Val Ser Asn Ala Asp His Pro  
245 250 255

Lys Gln Leu Val Phe His Ile Val Thr Asn Arg Val Ser Tyr Lys Ala  
260 265 270

Met Gln Ala Trp Phe Leu Ser Asn Asp Phe Lys Gly Ser Ala Ile Glu  
275 280 285

Ile Arg Ser Val Glu Glu Phe Ser Trp Leu Asn Ala Ser Tyr Ser Pro  
290 295 300

Val Val Lys Gln Leu Leu Asp Thr Asp Ala Arg Ala Tyr Tyr Phe Gly  
305 310 315 320

Glu Gln Thr Ser Gln Asp Thr Ile Ser Glu Pro Lys Val Arg Asn Pro  
325 330 335

Lys Tyr Leu Ser Leu Leu Asn His Leu Arg Phe Tyr Ile Pro Glu Ile  
340 345 350

Tyr Pro Gln Leu Glu Lys Ile Val Phe Leu Asp Asp Asp Val Val Val  
355 360 365

Gln Lys Asp Leu Thr Pro Leu Phe Ser Leu Asp Leu His Gly Asn Val  
370 375 380

Asn Gly Ala Val Glu Thr Cys Leu Glu Ala Phe His Arg Tyr Tyr Lys  
385 390 395 400

Tyr Leu Asn Phe Ser Asn Pro Leu Ile Ser Ser Lys Phe Asp Pro Gln  
405 410 415

## 14-03 WO.sequence listing.txt

Ala Cys Gly Trp Ala Phe Gly Met Asn Val Phe Asp Leu Ile Ala Trp  
 420 425 430

Arg Asn Ala Asn Val Thr Ala Arg Tyr His Tyr Trp Gln Asp Gln Asn  
 435 440 445

Arg Glu Arg Thr Leu Trp Lys Leu Gly Thr Leu Pro Pro Gly Leu Leu  
 450 455 460

Ser Phe Tyr Gly Leu Thr Glu Pro Leu Asp Arg Arg Trp His Val Leu  
 465 470 475 480

Gly Leu Gly Tyr Asp Val Asn Ile Asp Asn Arg Leu Ile Glu Thr Ala  
 485 490 495

Ala Val Ile His Tyr Asn Gly Asn Met Lys Pro Trp Leu Lys Leu Ala  
 500 505 510

Ile Gly Arg Tyr Lys Pro Phe Trp Leu Lys Phe Leu Asn Ser Ser His  
 515 520 525

Pro Tyr Leu Gln Asp Cys Val Thr Ala  
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gagggtatga atatgactga ggaaatgttg agtcctactt ccgttgctcg tcaagttat	240
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## 14-03 WO.sequence listing.txt

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&lt;210&gt; 12

&lt;211&gt; 536

&lt;212&gt; PRT

&lt;213&gt; Arabidopsis thaliana

&lt;400&gt; 12

Met	Arg	Arg	Arg	Gly	Gly	Asp	Ser	Phe	Arg	Arg	Ala	Gly	Arg	Arg	Lys
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Ile	Ser	Asn	Val	Val	Trp	Trp	Val	Leu	Ser	Gly	Ile	Ala	Leu	Leu	Leu
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Phe	Phe	Leu	Ile	Leu	Ser	Lys	Ala	Gly	His	Ile	Glu	Pro	Arg	Pro	Ser
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Ile	Pro	Lys	Arg	Arg	Tyr	Arg	Asn	Asp	Lys	Phe	Val	Glu	Gly	Met	Asn
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## 14-03 WO.sequence listing.txt

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115 120 125

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130 135 140

Ala Gln Gln Leu His Tyr Asp Ser Ala Thr Met Ile Met Arg Leu Lys  
145 150 155 160

Ala Ser Ile Gln Ala Leu Glu Glu Gln Met Ser Ser Val Ser Glu Lys  
165 170 175

Ser Ser Lys Tyr Gly Gln Ile Ala Ala Glu Glu Val Pro Lys Ser Leu  
180 185 190

Tyr Cys Leu Gly Val Arg Leu Thr Thr Glu Trp Phe Gln Asn Leu Asp  
195 200 205

Leu Gln Arg Thr Leu Lys Glu Arg Ser Arg Val Asp Ser Lys Leu Thr  
210 215 220

Asp Asn Ser Leu Tyr His Phe Cys Val Phe Ser Asp Asn Ile Ile Ala  
225 230 235 240

Thr Ser Val Val Val Asn Ser Thr Ala Leu Asn Ser Lys Ala Pro Glu  
245 250 255

Lys Val Val Phe His Leu Val Thr Asn Glu Ile Asn Tyr Ala Ala Met  
260 265 270

Lys Ala Trp Phe Ala Ile Asn Met Asp Asn Leu Arg Gly Val Thr Val  
275 280 285

Glu Val Gln Lys Phe Glu Asp Phe Ser Trp Leu Asn Ala Ser Tyr Val  
290 295 300

Pro Val Leu Lys Gln Leu Gln Asp Ser Asp Thr Gln Ser Tyr Tyr Phe  
305 310 315 320

Ser Gly His Asn Asp Asp Gly Arg Thr Pro Ile Lys Phe Arg Asn Pro  
325 330 335

Lys Tyr Leu Ser Met Leu Asn His Leu Arg Phe Tyr Ile Pro Glu Val  
340 345 350

## 14-03 WO.sequence Listing.txt

Phe Pro Ala Leu Lys Lys Val Val Phe Leu Asp Asp Asp Val Val Val  
 355 360 365

Gln Lys Asp Leu Ser Ser Leu Phe Ser Ile Asp Leu Asn Lys Asn Val  
 370 375 380

Asn Gly Ala Val Glu Thr Cys Met Glu Thr Phe His Arg Tyr His Lys  
 385 390 395 400

Tyr Leu Asn Tyr Ser His Pro Leu Ile Arg Ser His Phe Asp Pro Asp  
 405 410 415

Ala Cys Gly Trp Ala Phe Gly Met Asn Val Phe Asp Leu Val Glu Trp  
 420 425 430

Arg Lys Arg Asn Val Thr Gly Ile Tyr His Tyr Trp Gln Glu Lys Asn  
 435 440 445

Val Asp Arg Thr Leu Trp Lys Leu Gly Thr Leu Pro Pro Gly Leu Leu  
 450 455 460

Thr Phe Tyr Gly Leu Thr Glu Ala Leu Glu Ala Ser Trp His Ile Leu  
 465 470 475 480

Gly Leu Gly Tyr Thr Asn Val Asp Ala Arg Val Ile Glu Lys Gly Ala  
 485 490 495

Val Leu His Phe Asn Gly Asn Leu Lys Pro Trp Leu Lys Ile Gly Ile  
 500 505 510

Glu Lys Tyr Lys Pro Leu Trp Glu Arg Tyr Val Asp Tyr Thr Ser Pro  
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gctattgaac aggacgaaga aggcttgaag gagcctaaac gtattctgca ggatcgagat 240

14-03 WO.sequence Listing.txt

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<213> *Arabidopsis thaliana*  
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Page 23

14-03 WO.sequence Listing.txt  
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Ile Thr Asp Lys Thr Glu Asp Glu Leu Arg Leu Thr Ala Ile Glu Gln  
50 55 60

Asp Glu Glu Gly Leu Lys Glu Pro Lys Arg Ile Leu Gln Asp Arg Asp  
65 70 75 80

Phe Asn Ser Val Val Leu Ser Asn Ser Ser Asp Lys Ser Asn Asp Thr  
85 90 95

Val Gln Ser Asn Glu Gly Asp Gln Lys Asn Phe Leu Ser Glu Val Asp  
100 105 110

Lys Gly Asn Asn His Lys Pro Lys Glu Glu Gln Ala Val Ser Gln Lys  
115 120 125

Thr Thr Val Ser Ser Asn Ala Glu Val Lys Ile Ser Ala Arg Asp Ile  
130 135 140

Gln Leu Asn His Lys Thr Glu Phe Arg Pro Pro Ser Ser Lys Ser Glu  
145 150 155 160

Lys Asn Thr Arg Val Gln Leu Glu Arg Ala Thr Asp Glu Arg Val Lys  
165 170 175

Glu Ile Arg Asp Lys Ile Ile Gln Ala Lys Ala Tyr Leu Asn Leu Ala  
180 185 190

Leu Pro Gly Asn Asn Ser Gln Ile Val Lys Glu Leu Arg Val Arg Thr  
195 200 205

Lys Glu Leu Glu Arg Ala Thr Gly Asp Thr Thr Lys Asp Lys Tyr Leu  
210 215 220

Pro Lys Ser Ser Pro Asn Arg Leu Lys Ala Met Glu Val Ala Leu Tyr  
225 230 235 240

Lys Val Ser Arg Ala Phe His Asn Cys Pro Ala Ile Ala Thr Lys Leu  
245 250 255

14-03 WO.sequence listing.txt

Gln Ala Met Thr Tyr Lys Thr Glu Glu Gln Ala Arg Ala Gln Lys Lys  
260 265 270

Gln Ala Ala Tyr Leu Met Gln Leu Ala Ala Arg Thr Thr Pro Lys Gly  
275 280 285

Leu His Cys Leu Ser Met Arg Leu Thr Thr Glu Tyr Phe Thr Leu Asp  
290 295 300

His Glu Lys Arg Gln Leu Leu Gln Gln Ser Tyr Asn Asp Pro Asp Leu  
305 310 315 320

Tyr His Tyr Val Val Phe Ser Asp Asn Val Leu Ala Ser Ser Val Val  
325 330 335

Val Asn Ser Thr Ile Ser Ser Ser Lys Glu Pro Asp Lys Ile Val Phe  
340 345 350

His Val Val Thr Asp Ser Leu Asn Tyr Pro Ala Ile Ser Met Trp Phe  
355 360 365

Leu Leu Asn Pro Ser Gly Arg Ala Ser Ile Gln Ile Leu Asn Ile Asp  
370 375 380

Glu Met Asn Val Leu Pro Leu Tyr His Ala Glu Leu Leu Met Lys Gln  
385 390 395 400

Asn Ser Ser Asp Pro Arg Ile Ile Ser Ala Leu Asn His Ala Arg Phe  
405 410 415

Tyr Leu Pro Asp Ile Phe Pro Gly Leu Asn Lys Ile Val Leu Phe Asp  
420 425 430

His Asp Val Val Val Gln Arg Asp Leu Thr Arg Leu Trp Ser Leu Asp  
435 440 445

Met Thr Gly Lys Val Val Gly Ala Val Glu Thr Cys Leu Glu Gly Asp  
450 455 460

Pro Ser Tyr Arg Ser Met Asp Ser Phe Ile Asn Phe Ser Asp Ala Trp  
465 470 475 480

Val Ser Gln Lys Phe Asp Pro Lys Ala Cys Thr Trp Ala Phe Gly Met  
485 490 495

Asn Leu Phe Asp Leu Glu Glu Trp Arg Arg Gln Glu Leu Thr Ser Val  
500 505 510

## 14-03 WO.sequence listing.txt

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 545 550 555 560

Arg Ala Ser Asp Ile Glu Gln Ala Ala Val Ile His Tyr Asp Gly Ile  
 565 570 575

Met Lys Pro Trp Leu Asp Ile Gly Ile Asp Lys Tyr Lys Arg Tyr Trp  
 580 585 590

Asn Ile His Val Pro Tyr His His Pro His Leu Gln Arg Cys Asn Ile  
 595 600 605

His Asp  
 610

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14-03 WO.sequence listing.txt

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&lt;210&gt; 16

&lt;211&gt; 528

&lt;212&gt; PRT

&lt;213&gt; Arabidopsis thaliana

&lt;400&gt; 16

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				20				25					30		

Glu	Met	Leu	His	Glu	Arg	Ser	Leu	Arg	Gln	Glu	Lys	Arg	Leu	Glu	Arg
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	50				55				60						

Ala	Met	Ala	Arg	Ser	Arg	Ser	Val	Asp	Ser	Ala	Pro	Leu	Gly	Asn	Tyr
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Thr	Ile	Trp	Lys	Asn	Glu	Tyr	Arg	Arg	Gly	Lys	Ser	Phe	Glu	Asp	Met
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Leu	Arg	Leu	Met	Gln	Asp	Gln	Ile	Ile	Met	Ala	Arg	Val	Tyr	Ser	Gly
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14-03 WO.sequence listing.txt  
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130                   135                   140

Glu Gln Arg Val Leu Asp Ser Ile Arg Asp Met Gly Gln Ile Leu Ala  
145                   150                   155                   160

Arg Ala His Glu Gln Leu Tyr Glu Cys Lys Leu Val Thr Asn Lys Leu  
165                   170                   175

Arg Ala Met Leu Gln Thr Val Glu Asp Glu Leu Glu Asn Glu Gln Thr  
180                   185                   190

Tyr Ile Thr Phe Leu Thr Gln Leu Ala Ser Lys Ala Leu Pro Asp Ala  
195                   200                   205

Ile His Cys Leu Thr Met Arg Leu Asn Leu Glu Tyr His Leu Leu Pro  
210                   215                   220

Leu Pro Met Arg Asn Phe Pro Arg Arg Glu Asn Leu Glu Asn Pro Lys  
225                   230                   235                   240

Leu Tyr His Tyr Ala Leu Phe Ser Asp Asn Val Leu Ala Ala Ser Val  
245                   250                   255

Val Val Asn Ser Thr Val Met Asn Ala Gln Asp Pro Ser Arg His Val  
260                   265                   270

Phe His Leu Val Thr Asp Lys Leu Asn Phe Gly Ala Met Ser Met Trp  
275                   280                   285

Phe Leu Leu Asn Pro Pro Gly Glu Ala Thr Ile His Val Gln Arg Phe  
290                   295                   300

Glu Asp Phe Thr Trp Leu Asn Ser Ser Tyr Ser Pro Val Leu Ser Gln  
305                   310                   315                   320

Leu Glu Ser Ala Ala Met Lys Lys Phe Tyr Phe Lys Thr Ala Arg Ser  
325                   330                   335

Glu Ser Val Glu Ser Gly Ser Glu Asn Leu Lys Tyr Arg Tyr Pro Lys  
340                   345                   350

Tyr Met Ser Met Leu Asn His Leu Arg Phe Tyr Ile Pro Arg Ile Phe  
355                   360                   365

## 14-03 WO.sequence listing.txt

Pro Lys Leu Glu Lys Ile Leu Phe Val Asp Asp Asp Val Val Val Gln  
 370 375 380 385

Lys Asp Leu Thr Pro Leu Trp Ser Ile Asp Leu Lys Gly Lys Val Asn  
 385 390 395 400

Glu Asn Phe Asp Pro Lys Phe Cys Gly Trp Ala Tyr Gly Met Asn Ile  
 405 410 415

Phe Asp Leu Lys Glu Trp Lys Lys Asn Asn Ile Thr Glu Thr Tyr His  
 420 425 430

Phe Trp Gln Asn Leu Asn Glu Asn Arg Thr Leu Trp Lys Leu Gly Thr  
 435 440 445

Leu Pro Pro Gly Leu Ile Thr Phe Tyr Asn Leu Thr Gln Pro Leu Gln  
 450 455 460

Arg Lys Trp His Leu Leu Gly Leu Gly Tyr Asp Lys Gly Ile Asp Val  
 465 470 475 480

Lys Lys Ile Glu Arg Ser Ala Val Ile His Tyr Asn Gly His Met Lys  
 485 490 495

Pro Trp Thr Glu Met Gly Ile Ser Lys Tyr Gln Pro Tyr Trp Thr Lys  
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<211> 1602

<212> DNA

<213> Arabidopsis thaliana

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## 14-03 WO.sequence listing.txt

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&lt;210&gt; 18

&lt;211&gt; 533

&lt;212&gt; PRT

&lt;213&gt; Arabidopsis thaliana

&lt;400&gt; 18

Met	Gln	Leu	His	Ile	Ser	Pro	Ser	Met	Arg	Ser	Ile	Thr	Ile	Ser	Ser
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						20		25				30			

Ile	Ser	Tyr	Arg	Thr	Leu	Phe	His	Thr	Ile	Leu	Ile	Leu	Ala	Phe	Leu
					35			40			45				

Leu	Pro	Phe	Val	Phe	Ile	Leu	Thr	Ala	Val	Val	Thr	Leu	Glu	Gly	Val
					50			55			60				

Asn	Lys	Cys	Ser	Ser	Phe	Asp	Cys	Phe	Gly	Arg	Arg	Leu	Gly	Pro	Arg
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## 14-03 WO.sequence Listing.txt

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Lys Leu Pro Glu Ser Phe Ser Gln Leu Val Ser Asp Met Lys Asn Asn  
115 120 125

His Tyr Asp Ala Lys Thr Phe Ala Leu Val Phe Arg Ala Met Val Glu  
130 135 140

Lys Phe Glu Arg Asp Leu Arg Glu Ser Lys Phe Ala Glu Leu Met Asn  
145 150 155 160

Lys His Phe Ala Ala Ser Ser Ile Pro Lys Gly Ile His Cys Leu Ser  
165 170 175

Leu Arg Leu Thr Asp Glu Tyr Ser Ser Asn Ala His Ala Arg Arg Gln  
180 185 190

Leu Pro Ser Pro Glu Leu Leu Pro Val Leu Ser Asp Asn Ala Tyr His  
195 200 205

His Phe Val Leu Ala Thr Asp Asn Ile Leu Ala Ala Ser Val Val Val  
210 215 220

Ser Ser Ala Val Gln Ser Ser Ser Lys Pro Glu Lys Ile Val Phe His  
225 230 235 240

Val Ile Thr Asp Lys Lys Thr Tyr Ala Gly Met His Ser Trp Phe Ala  
245 250 255

Leu Asn Ser Val Ala Pro Ala Ile Val Glu Val Lys Ser Val His Gln  
260 265 270

Phe Asp Trp Leu Thr Arg Glu Asn Val Pro Val Leu Glu Ala Val Glu  
275 280 285

Ser His Asn Ser Ile Arg Asn Tyr Tyr His Gly Asn His Ile Ala Gly  
290 295 300

Ala Asn Leu Ser Glu Thr Thr Pro Arg Thr Phe Ala Ser Lys Leu Gln  
305 310 315 320

Ser Arg Ser Pro Lys Tyr Ile Ser Leu Leu Asn His Leu Arg Ile Tyr  
Page 31

14-03 WO.sequence listing.txt  
325                   330                   335

Leu Pro Glu Leu Phe Pro Asn Leu Asp Lys Val Val Phe Leu Asp Asp  
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Asp Ile Val Ile Gln Lys Asp Leu Ser Pro Leu Trp Asp Ile Asp Leu  
355                   360                   365

Asn Gly Lys Val Asn Gly Ala Val Glu Thr Cys Arg Gly Glu Asp Val  
370                   375                   380

Trp Val Met Ser Lys Arg Leu Arg Asn Tyr Phe Asn Phe Ser His Pro  
385                   390                   395                   400

Leu Ile Ala Lys His Leu Asp Pro Glu Glu Cys Ala Trp Ala Tyr Gly  
405                   410                   415

Met Asn Ile Phe Asp Leu Arg Thr Trp Arg Lys Thr Asn Ile Arg Glu  
420                   425                   430

Thr Tyr His Ser Trp Leu Lys Glu Asn Leu Lys Ser Asn Leu Thr Met  
435                   440                   445

Trp Lys Leu Gly Thr Leu Pro Pro Ala Leu Ile Ala Phe Lys Gly His  
450                   455                   460

Val Gln Pro Ile Asp Ser Ser Trp His Met Leu Gly Leu Gly Tyr Gln  
465                   470                   475                   480

Ser Lys Thr Asn Leu Glu Asn Ala Lys Lys Ala Ala Val Ile His Tyr  
485                   490                   495

Asn Gly Gln Ser Lys Pro Trp Leu Glu Ile Gly Phe Glu His Leu Arg  
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Cys His Ile Leu Glu  
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14-03 WO.sequence listing.txt

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## 14-03 WO.sequence listing.txt

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Leu Phe Ser Phe Leu Phe Leu Ala Thr Phe Ser Val Val Leu Asn Ser  
35 40 45

Ser Arg His Gln Pro His Gln Asp His Thr Leu Pro Ser Met Gly Asn  
50 55 60

Ala Tyr Met Gln Arg Thr Phe Leu Ala Leu Gln Ser Asp Pro Leu Lys  
65 70 75 80

Thr Arg Leu Asp Leu Ile His Lys Gln Ala Ile Asp His Leu Thr Leu  
85 90 95

Val Asn Ala Tyr Ala Ala Tyr Ala Arg Lys Leu Lys Leu Asp Ala Ser  
100 105 110

Lys Gln Leu Lys Leu Phe Glu Asp Leu Ala Ile Asn Phe Ser Asp Leu  
115 120 125

Gln Ser Lys Pro Gly Leu Lys Ser Ala Val Ser Asp Asn Gly Asn Ala  
130 135 140

Leu Glu Glu Asp Ser Phe Arg Gln Leu Glu Lys Glu Val Lys Asp Lys  
145 150 155 160

Val Lys Thr Ala Arg Met Met Ile Val Glu Ser Lys Glu Ser Tyr Asp  
165 170 175

Thr Gln Leu Lys Ile Gln Lys Leu Lys Asp Thr Ile Phe Ala Val Gln  
180 185 190

Glu Gln Leu Thr Lys Ala Lys Lys Asn Gly Ala Val Ala Ser Leu Ile  
195 200 205

Ser Ala Lys Ser Val Pro Lys Ser Leu His Cys Leu Ala Met Arg Leu  
210 215 220

Val Gly Glu Arg Ile Ser Asn Pro Glu Lys Tyr Lys Asp Ala Pro Pro  
225 230 235 240

Asp Pro Ala Ala Glu Asp Pro Thr Leu Tyr His Tyr Ala Ile Phe Ser  
245 250 255

## 14-03 WO.sequence listing.txt

Asp Asn Val Ile Ala Val Ser Val Val Val Arg Ser Val Val Met Asn  
260 265 270

Ala Glu Glu Pro Trp Lys His Val Phe His Val Val Thr Asp Arg Met  
275 280 285

Asn Leu Ala Ala Met Lys Val Trp Phe Lys Met Arg Pro Leu Asp Arg  
290 295 300

Gly Ala His Val Glu Ile Lys Ser Val Glu Asp Phe Lys Phe Leu Asn  
305 310 315 320

Ser Ser Tyr Ala Pro Val Leu Arg Gln Leu Glu Ser Ala Lys Leu Gln  
325 330 335

Lys Phe Tyr Phe Glu Asn Gln Ala Glu Asn Ala Thr Lys Asp Ser His  
340 345 350

Asn Leu Lys Phe Lys Asn Pro Lys Tyr Leu Ser Met Leu Asn His Leu  
355 360 365

Arg Phe Tyr Leu Pro Glu Met Tyr Pro Lys Leu Asn Lys Ile Leu Phe  
370 375 380

Leu Asp Asp Asp Val Val Val Gln Lys Asp Val Thr Gly Leu Trp Lys  
385 390 395 400

Ile Asn Leu Asp Gly Lys Val Asn Gly Ala Val Glu Thr Cys Phe Gly  
405 410 415

Ser Phe His Arg Tyr Gly Gln Tyr Leu Asn Phe Ser His Pro Leu Ile  
420 425 430

Lys Glu Asn Phe Asn Pro Ser Ala Cys Ala Trp Ala Phe Gly Met Asn  
435 440 445

Ile Phe Asp Leu Asn Ala Trp Arg Arg Glu Lys Cys Thr Asp Gln Tyr  
450 455 460

His Tyr Trp Gln Asn Leu Asn Glu Asp Arg Thr Leu Trp Lys Leu Gly  
465 470 475 480

Thr Leu Pro Pro Gly Leu Ile Thr Phe Tyr Ser Lys Thr Lys Ser Leu  
485 490 495

Asp Lys Ser Trp His Val Leu Gly Leu Gly Tyr Asn Pro Gly Val Ser  
Page 35

14-03 WO.sequence listing.txt  
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 515                520                525

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 530                535                540

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<212> DNA  
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## 14-03 WO.sequence listing.txt

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cacttcaacg gtaacatgaa	gccatggc	ttt gacatgcta tgaaccagtt tcgaccactt	1620
tggaccaaac acgtcgacta	tgacctcgag	ttt gttcagg cttgcaattt tggcctctga	1680

<210> 22  
<211> 559

<212> PRT

<213> *Arabidopsis thaliana*

<400> 22

Met Ala Asn His His Arg Leu Leu Arg Gly Gly Gly Ser Pro Ala Ile  
1 5 10 15

Ile Gly Gly Arg Ile Thr Leu Thr Ala Phe Ala Ser Thr Ile Ala Leu  
20 25 30

Phe Leu Phe Thr Leu Ser Phe Phe Ala Ser Asp Ser Asn Asp Ser  
35 40 45

Pro Asp Leu Leu Leu Pro Gly Val Glu Tyr Ser Asn Gly Val Gly Ser  
50 55 60

Arg Arg Ser Met Leu Asp Ile Lys Ser Asp Pro Leu Lys Pro Arg Leu  
65 70 75 80

Ile Gln Ile Arg Lys Gln Ala Asp Asp His Arg Ser Leu Ala Leu Ala  
85 90 95

Tyr Ala Ser Tyr Ala Arg Lys Leu Lys Leu Glu Asn Ser Lys Leu Val  
100 105 110

Arg Ile Phe Ala Asp Leu Ser Arg Asn Tyr Thr Asp Leu Ile Asn Lys  
115 120 125

Pro Thr Tyr Arg Ala Leu Tyr Asp Ser Asp Gly Ala Ser Ile Glu Glu  
130 135 140

Ser Val Leu Arg Gln Phe Glu Lys Glu Val Lys Glu Arg Ile Lys Met  
Page 37

145                    150                    155                    160  
165                    170                    175  
Thr Arg Gln Val Ile Ala Glu Ala Lys Glu Ser Phe Asp Asn Gln Leu  
Lys Ile Gln Lys Leu Lys Asp Thr Ile Phe Ala Val Asn Glu Gln Leu  
180                    185                    190  
Thr Asn Ala Lys Lys Gln Gly Ala Phe Ser Ser Leu Ile Ala Ala Lys  
195                    200                    205  
Ser Ile Pro Lys Gly Leu His Cys Leu Ala Met Arg Leu Met Glu Glu  
210                    215                    220  
Arg Ile Ala His Pro Glu Lys Tyr Thr Asp Glu Gly Lys Asp Arg Pro  
225                    230                    235                    240  
Arg Glu Leu Glu Asp Pro Asn Leu Tyr His Tyr Ala Ile Phe Ser Asp  
245                    250                    255  
Asn Val Ile Ala Ala Ser Val Val Val Asn Ser Ala Val Lys Asn Ala  
260                    265                    270  
Lys Glu Pro Trp Lys His Val Phe His Val Val Thr Asp Lys Met Asn  
275                    280                    285  
Leu Gly Ala Met Gln Val Met Phe Lys Leu Lys Glu Tyr Lys Gly Ala  
290                    295                    300  
His Val Glu Val Lys Ala Val Glu Asp Tyr Thr Phe Leu Asn Ser Ser  
305                    310                    315                    320  
Tyr Val Pro Val Leu Lys Gln Leu Glu Ser Ala Asn Leu Gln Lys Phe  
325                    330                    335  
Tyr Phe Glu Asn Lys Leu Glu Asn Ala Thr Lys Asp Thr Thr Asn Met  
340                    345                    350  
Lys Phe Arg Asn Pro Lys Tyr Leu Ser Ile Leu Asn His Leu Arg Phe  
355                    360                    365  
Tyr Leu Pro Glu Met Tyr Pro Lys Leu His Arg Ile Leu Phe Leu Asp  
370                    375                    380  
Asp Asp Val Val Val Gln Lys Asp Leu Thr Gly Leu Trp Glu Ile Asp  
385                    390                    395                    400

## 14-03 WO.sequence listing.txt

Met Asp Gly Lys Val Asn Gly Ala Val Glu Thr Cys Phe Gly Ser Phe  
 405 410 415

His Arg Tyr Ala Gln Tyr Met Asn Phe Ser His Pro Leu Ile Lys Glu  
 420 425 430

Lys Phe Asn Pro Lys Ala Cys Ala Trp Ala Tyr Gly Met Asn Phe Phe  
 435 440 445

Asp Leu Asp Ala Trp Arg Arg Glu Lys Cys Thr Glu Glu Tyr His Tyr  
 450 455 460

Trp Gln Asn Leu Asn Glu Asn Arg Ala Leu Trp Lys Leu Gly Thr Leu  
 465 470 475 480

Pro Pro Gly Leu Ile Thr Phe Tyr Ser Thr Thr Lys Pro Leu Asp Lys  
 485 490 495

Ser Trp His Val Leu Gly Leu Gly Tyr Asn Pro Ser Ile Ser Met Asp  
 500 505 510

Glu Ile Arg Asn Ala Ala Val Val His Phe Asn Gly Asn Met Lys Pro  
 515 520 525

Trp Leu Asp Ile Ala Met Asn Gln Phe Arg Pro Leu Trp Thr Lys His  
 530 535 540

Val Asp Tyr Asp Leu Glu Phe Val Gln Ala Cys Asn Phe Gly Leu  
 545 550 555

<210> 23

<211> 1623

<212> DNA

<213> *Arabidopsis thaliana*

<400> 23

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ttctctagtc gcacgttgtt actgttgctg ctgctgctcg ctatcgctt ccctttatc 180

ttcgtcaggt tcgcgtttct cgtcctcgaa tctgcctccg tttgcgattc accactcgat 240

tgcattggac tcagactttt ccgtgggggc gacacatctc tgaaaattgg ggaagagttg 300

acacgggctc tagtggaga gacgacagat catcaggacg ttaatggaa aggaacgaag 360

ggatcattgg agtcattcga cgaccattgtt aaggagatga cgttaaaacg ccgtgacata 420

agggcggttg cttccgtgac taagaagatg ctgttgacaga tggaacgtaa agtccaatca 480

gcaaacatc atgagttgt gtactggcat ttacgttctc acggatttcc taaaaggcctc 540

## 14-03 WO.sequence listing.txt

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ctgactgaca	atgtccttgc	tgcctctgtc	gtcatatcg	ctactgtaca	aaacgctgtg	720	
aatcccaga	agtttgtctt	tcatattgtt	accgataaga	aaacctatac	ccctatgcat	780	
gcttggtttg	ctatcaactc	tgcttcatca	ccagttgtt	aagtaaaagg	acttcatcag	840	
tatgattggc	ctcaagaagt	gaacttcaa	gttagagaga	tgctggacat	tcaccgctta	900	
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catgagcagt	ccttgcgaagc	tctaaatcct	agctgcctt	ccctttgaa	ccatcttcgc	1020	
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gtagtacaga	gcgatcttc	gtcttatgg	gaaacggatc	tcaacggtaa	agttgttgg	1140	
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gctggactag	gttctcgatc	cgtaaaatcc	cctcaagaga	ttctgaaatc	tgcttcgg	1500	
ttacatttca	gcggtc	cagc	aaaaccgtgg	ctagagatca	gtaaccctga	ggtacgatct	1560
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tga						1623	

<210> 24  
<211> 540  
<212> PRT  
<213> *Arabidopsis thaliana*

<400> 24

Met Lys Phe Tyr Ile Ser Ala Thr Gly Ile Lys Lys Val Thr Ile Ser  
1 5 10 15

Asn Pro Gly Val Gly Ile Gly Lys Gly Ser Gly Gly Cys Ala Ala Ala  
20 25 30

Ala Ala Ala Leu Ala Ala Arg Arg Phe Ser Ser Arg Thr Leu Leu Leu  
35 40 45

Leu Leu Leu Leu Ala Ile Val Leu Pro Phe Ile Phe Val Arg Phe  
50 55 60

## 14-03 WO.sequence Listing.txt

Ala Phe Leu Val Leu Glu Ser Ala Ser Val Cys Asp Ser Pro Leu Asp  
65 70 75 80

Cys Met Gly Leu Arg Leu Phe Arg Gly Gly Asp Thr Ser Leu Lys Ile  
85 90 95

Gly Glu Glu Leu Thr Arg Ala Leu Val Glu Glu Thr Thr Asp His Gln  
100 105 110

Asp Val Asn Gly Arg Gly Thr Lys Gly Ser Leu Glu Ser Phe Asp Asp  
115 120 125

Leu Val Lys Glu Met Thr Leu Lys Arg Arg Asp Ile Arg Ala Phe Ala  
130 135 140

Ser Val Thr Lys Lys Met Leu Leu Gln Met Glu Arg Lys Val Gln Ser  
145 150 155 160

Ala Lys His His Glu Leu Val Tyr Trp His Leu Ala Ser His Gly Ile  
165 170 175

Pro Lys Ser Leu His Cys Leu Ser Leu Arg Leu Thr Glu Glu Tyr Ser  
180 185 190

Val Asn Ala Met Ala Arg Met Arg Leu Pro Pro Pro Glu Ser Val Ser  
195 200 205

Arg Leu Thr Asp Pro Ser Phe His His Ile Val Leu Leu Thr Asp Asn  
210 215 220

Val Leu Ala Ala Ser Val Val Ile Ser Ser Thr Val Gln Asn Ala Val  
225 230 235 240

Asn Pro Glu Lys Phe Val Phe His Ile Val Thr Asp Lys Lys Thr Tyr  
245 250 255

Thr Pro Met His Ala Trp Phe Ala Ile Asn Ser Ala Ser Ser Pro Val  
260 265 270

Val Glu Val Lys Gly Leu His Gln Tyr Asp Trp Pro Gln Glu Val Asn  
275 280 285

Phe Lys Val Arg Glu Met Leu Asp Ile His Arg Leu Ile Trp Arg Arg  
290 295 300

His Tyr Gln Asn Leu Lys Asp Ser Asp Phe Ser Phe Val Glu Gly Thr  
305 310 315 320

## 14-03 WO.sequence Listing.txt

His Glu Gln Ser Leu Gln Ala Leu Asn Pro Ser Cys Leu Ala Leu Leu  
325 330 335

Asn His Leu Arg Ile Tyr Ile Pro Lys Leu Phe Pro Asp Leu Asn Lys  
340 345 350

Ile Val Leu Leu Asp Asp Asp Val Val Val Gln Ser Asp Leu Ser Ser  
355 360 365

Leu Trp Glu Thr Asp Leu Asn Gly Lys Val Val Gly Ala Val Val Asp  
370 375 380

Ser Trp Cys Gly Asp Asn Cys Cys Pro Gly Arg Lys Tyr Lys Asp Tyr  
385 390 395 400

Phe Asn Phe Ser His Pro Leu Ile Ser Ser Asn Leu Val Gln Glu Asp  
405 410 415

Cys Ala Trp Leu Ser Gly Met Asn Val Phe Asp Leu Lys Ala Trp Arg  
420 425 430

Gln Thr Asn Ile Thr Glu Ala Tyr Ser Thr Trp Leu Arg Leu Ser Val  
435 440 445

Arg Ser Gly Leu Gln Leu Trp Gln Pro Gly Ala Leu Pro Pro Thr Leu  
450 455 460

Leu Ala Phe Lys Gly Leu Thr Gln Ser Leu Glu Pro Ser Trp His Val  
465 470 475 480

Ala Gly Leu Gly Ser Arg Ser Val Lys Ser Pro Gln Glu Ile Leu Lys  
485 490 495

Ser Ala Ser Val Leu His Phe Ser Gly Pro Ala Lys Pro Trp Leu Glu  
500 505 510

Ile Ser Asn Pro Glu Val Arg Ser Leu Trp Tyr Arg Tyr Val Asn Ser  
515 520 525

Ser Asp Ile Phe Val Arg Lys Cys Lys Ile Met Asn  
530 535 540

&lt;210&gt; 25

&lt;211&gt; 2043

&lt;212&gt; DNA

&lt;213&gt; Arabidopsis thaliana

&lt;400&gt; 25

14-03 WO.sequence listing.txt

atgacgacgt tctctacatg cgccgccttt ttatcgctgg tagtagtgc acatgctgtt	60
catgtcggtg gagccatttt agagtcacaa gcaccccaca gagaacttaa agcttacgt	120
ccgctgcaag ataataatct acaggaggtg tatgcttcct cagctgctgc agtgcactac	180
gatccagatc taaaagatgt gaacatagtt gcgacataca gtgaccatta cggcaatata	240
cgccttgta gggtaaaaat gggggatctt tcacccctt gggtttgga gaatccgtcc	300
tatcaagtta gccgcaaaac aaaagttcg cagctagttt taccacggga ttcatatcaa	360
aatgatactg gaatggaaga taatgcaagc cattctacaa ctaatcagac tgatgaaagc	420
aaaaatcagt ttccaaacgt ggatttgca agcccagcaa aactgaagcg gcagatttt	480
cgtcaggaaa ggagaggtca acgaacttta gagctgatcc gacaagaaaa ggaaactgat	540
gagcagatgc aagaaggcgc cattcagaag tcaatgagct ttgaaaactc agtcataagg	600
aaatacagta tatggaggag agactatgag agcccaaattt ctgatgctat cttgaagctt	660
atgagagacc agatcataat ggcaaaagca tatgcaaaata ttgcaaaatc aaaaaatgt	720
accaatctgt acgtttctt gatcagcag tgtggagaaa ataaacgtgt tataggtaaa	780
gcaacctctg atgctgaccc tccttcaagc gctctgatc aagcaaaagc catggccat	840
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gccatccttc agtccactga acgcaaaagta gatggactga agaaaaaggg aaccttctt	960
attcagctag ctgcaaaac atttccaag ccattgcatt gcctgagtct gcagctagcg	1020
gcagactatt ttattctagg tttcaatgaa gaggatgcag tgaaagagga tgtcagtcaa	1080
aagaagctt aagatccttc gctctatcac tatgcgtatct ttccggataa cgttctggct	1140
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cctgctgatg cgacgattca agttgaaaac ataaatgatt tcaagtggct gaactcctct	1320
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aatcatcctt catcaatctc agctggcgca gataatctaa agtaccgcaa cccaaagtat	1440
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gacatgcaag gaaaagtgaa tggtgccgtg gagacgtgca aggagagctt ccacagattt	1620
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gggatataatc actattggca agacttgaat gaagacagaa cactgtggaa gctggatcg	1800
ttgccaccgg ggctgataac attttacaac ctgacgtatg caatggatag gagctggcac	1860
gtacttagggc tggatgatga cccagcgcta aaccaaacag caatagagaa tgcagcggt	1920

## 14-03 WO.sequence listing.txt

gtgcattaca atgggaacta caagccatgg ctgggttag cattcgccaa gtacaaaccg 1980  
tactggtcca agtacgttga gtacgacaac ccttatctcc gacggtgcgaa catcaatgaa 2040  
tga 2043

<210> 26  
<211> 680  
<212> PRT  
<213> Arabidopsis thaliana

<400> 26

Met Thr Thr Phe Ser Thr Cys Ala Ala Phe Leu Ser Leu Val Val Val  
1 5 10 15

Leu His Ala Val His Val Gly Gly Ala Ile Leu Glu Ser Gln Ala Pro  
20 25 30

His Arg Glu Leu Lys Ala Tyr Arg Pro Leu Gln Asp Asn Asn Leu Gln  
35 40 45

Glu Val Tyr Ala Ser Ser Ala Ala Ala Val His Tyr Asp Pro Asp Leu  
50 55 60

Lys Asp Val Asn Ile Val Ala Thr Tyr Ser Asp His Tyr Gly Asn Ile  
65 70 75 80

Arg Leu Gly Arg Val Lys Met Gly Asp Leu Ser Pro Ser Trp Val Leu  
85 90 95

Glu Asn Pro Ala Tyr Gln Val Ser Arg Lys Thr Lys Gly Ser Gln Leu  
100 105 110

Val Ile Pro Arg Asp Ser Phe Gln Asn Asp Thr Gly Met Glu Asp Asn  
115 120 125

Ala Ser His Ser Thr Thr Asn Gln Thr Asp Glu Ser Glu Asn Gln Phe  
130 135 140

Pro Asn Val Asp Phe Ala Ser Pro Ala Lys Leu Lys Arg Gln Ile Leu  
145 150 155 160

Arg Gln Glu Arg Arg Gly Gln Arg Thr Leu Glu Leu Ile Arg Gln Glu  
165 170 175

Lys Glu Thr Asp Glu Gln Met Gln Glu Ala Ala Ile Gln Lys Ser Met  
180 185 190

14-03 WO.sequence listing.txt

Ser Phe Glu Asn Ser Val Ile Gly Lys Tyr Ser Ile Trp Arg Arg Asp  
195 200 205

Tyr Glu Ser Pro Asn Ala Asp Ala Ile Leu Lys Leu Met Arg Asp Gln  
210 215 220

Ile Ile Met Ala Lys Ala Tyr Ala Asn Ile Ala Lys Ser Lys Asn Val  
225 230 235 240

Thr Asn Leu Tyr Val Phe Leu Met Gln Gln Cys Gly Glu Asn Lys Arg  
245 250 255

Val Ile Gly Lys Ala Thr Ser Asp Ala Asp Leu Pro Ser Ser Ala Leu  
260 265 270

Asp Gln Ala Lys Ala Met Gly His Ala Leu Ser Leu Ala Lys Asp Glu  
275 280 285

Leu Tyr Asp Cys His Glu Leu Ala Lys Lys Phe Arg Ala Ile Leu Gln  
290 295 300

Ser Thr Glu Arg Lys Val Asp Gly Leu Lys Lys Lys Gly Thr Phe Leu  
305 310 315 320

Ile Gln Leu Ala Ala Lys Thr Phe Pro Lys Pro Leu His Cys Leu Ser  
325 330 335

Leu Gln Leu Ala Ala Asp Tyr Phe Ile Leu Gly Phe Asn Glu Glu Asp  
340 345 350

Ala Val Lys Glu Asp Val Ser Gln Lys Lys Leu Glu Asp Pro Ser Leu  
355 360 365

Tyr His Tyr Ala Ile Phe Ser Asp Asn Val Leu Ala Thr Ser Val Val  
370 375 380

Val Asn Ser Thr Val Leu Asn Ala Lys Glu Pro Gln Arg His Val Phe  
385 390 395 400

His Ile Val Thr Asp Lys Leu Asn Phe Gly Ala Met Lys Met Trp Phe  
405 410 415

Arg Ile Asn Ala Pro Ala Asp Ala Thr Ile Gln Val Glu Asn Ile Asn  
420 425 430

Asp Phe Lys Trp Leu Asn Ser Ser Tyr Cys Ser Val Leu Arg Gln Leu  
435 440 445

## 14-03 WO.sequence listing.txt

Glu Ser Ala Arg Leu Lys Glu Tyr Tyr Phe Lys Ala Asn His Pro Ser  
450 455 460

Ser Ile Ser Ala Gly Ala Asp Asn Leu Lys Tyr Arg Asn Pro Lys Tyr  
465 470 475 480

Leu Ser Met Leu Asn His Leu Arg Phe Tyr Leu Pro Glu Val Tyr Pro  
485 490 495

Lys Leu Glu Lys Ile Leu Phe Leu Asp Asp Asp Ile Val Val Gln Lys  
500 505 510

Asp Leu Ala Pro Leu Trp Glu Ile Asp Met Gln Gly Lys Val Asn Gly  
515 520 525

Ala Val Glu Thr Cys Lys Glu Ser Phe His Arg Phe Asp Lys Tyr Leu  
530 535 540

Asn Phe Ser Asn Pro Lys Ile Ser Glu Asn Phe Asp Ala Gly Ala Cys  
545 550 555 560

Gly Trp Ala Phe Gly Met Asn Met Phe Asp Leu Lys Glu Trp Arg Lys  
565 570 575

Arg Asn Ile Thr Gly Ile Tyr His Tyr Trp Gln Asp Leu Asn Glu Asp  
580 585 590

Arg Thr Leu Trp Lys Leu Gly Ser Leu Pro Pro Gly Leu Ile Thr Phe  
595 600 605

Tyr Asn Leu Thr Tyr Ala Met Asp Arg Ser Trp His Val Leu Gly Leu  
610 615 620

Gly Tyr Asp Pro Ala Leu Asn Gln Thr Ala Ile Glu Asn Ala Ala Val  
625 630 635 640

Val His Tyr Asn Gly Asn Tyr Lys Pro Trp Leu Gly Leu Ala Phe Ala  
645 650 655

Lys Tyr Lys Pro Tyr Trp Ser Lys Tyr Val Glu Tyr Asp Asn Pro Tyr  
660 665 670

Leu Arg Arg Cys Asp Ile Asn Glu  
675 680

<210> 27  
<211> 1599

## 14-03 WO.sequence listing.txt

&lt;212&gt; DNA

&lt;213&gt; Arabidopsis thaliana

&lt;400&gt; 27

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accatcttaa tcctcgctt cttgttgccc ttgtttca ttctcacccgc tgggttacc	180
cttggggtg tcaacaaatg ctccattt gattgttag ggaggcggat aggtccacgt	240
cttcttgta gggtagatga ttcagagaga ctagctagag actttataa aattctaaac	300
gaagtaagca ctcaagaaat tccagatggt ttgaagcttc caaattctt tagtcaactt	360
gttccgata tgaagaataa ccactatgtat gcaaaaacat ttgccttgt gctgcgagcc	420
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ctttcagata atgcttacca ccactttatt ttgtccacgg acaatatttt ggctgcctca	660
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gtcgctgggg caaacctcac cgaaacaact cctcgaacat ttgcctcaaa attgcagtct	960
agaagtccaa aatacatatc tttgctcaac catcttagaa tatataacc agagctttc	1020
ccgaacttgg acaagggtgg tttcttagac gatgatatacg ttgtccaggg agacttaact	1080
ccactttggg atgttgcacct cggtgtaag gtcaatgggg cagtagagac ttgcagggt	1140
gaagatgaat gggtgatgtc aaagcgaaaactact tcaatttctc tcacccgctc	1200
atcgcaaagc atttagatcc tgaagaatgt gcttggcat atggatgaa tatcttcgat	1260
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aagaccaaca tagaaaaatgt gaagaaagca gcagtgtatcc actacaatgg gcagtcaaag	1500
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tcaaatttgcatt tcatcaagaa ctgtcacata ttggagtag	1599

&lt;210&gt; 28

&lt;211&gt; 532

&lt;212&gt; PRT

&lt;213&gt; Arabidopsis thaliana

## 14-03 WO.sequence listing.txt

&lt;400&gt; 28

Met Gln Leu His Ile Ser Pro Ser Met Arg Ser Ile Thr Ile Ser Ser  
1 5 10 15

Ser Asn Glu Phe Ile Asp Leu Met Lys Ile Lys Val Ala Ala Arg His  
20 25 30

Ile Ser Tyr Arg Thr Leu Phe His Thr Ile Leu Ile Leu Ala Phe Leu  
35 40 45

Leu Pro Phe Val Phe Ile Leu Thr Ala Val Val Thr Leu Glu Gly Val  
50 55 60

Asn Lys Cys Ser Ser Ile Asp Cys Leu Gly Arg Arg Ile Gly Pro Arg  
65 70 75 80

Leu Leu Gly Arg Val Asp Asp Ser Glu Arg Leu Ala Arg Asp Phe Tyr  
85 90 95

Lys Ile Leu Asn Glu Val Ser Thr Gln Glu Ile Pro Asp Gly Leu Lys  
100 105 110

Leu Pro Asn Ser Phe Ser Gln Leu Val Ser Asp Met Lys Asn Asn His  
115 120 125

Tyr Asp Ala Lys Thr Phe Ala Leu Val Leu Arg Ala Met Met Glu Lys  
130 135 140

Phe Glu Arg Asp Met Arg Glu Ser Lys Phe Ala Glu Leu Met Asn Lys  
145 150 155 160

His Phe Ala Ala Ser Ser Ile Pro Lys Gly Ile His Cys Leu Ser Leu  
165 170 175

Arg Leu Thr Asp Glu Tyr Ser Ser Asn Ala His Ala Arg Arg Gln Leu  
180 185 190

Pro Ser Pro Glu Phe Leu Pro Val Leu Ser Asp Asn Ala Tyr His His  
195 200 205

Phe Ile Leu Ser Thr Asp Asn Ile Leu Ala Ala Ser Val Val Val Ser  
210 215 220

Ser Ala Val Gln Ser Ser Ser Lys Pro Glu Lys Ile Val Phe His Ile  
225 230 235 240

14-03 WO.sequence listing.txt

Ile Thr Asp Lys Lys Thr Tyr Ala Gly Met His Ser Trp Phe Ala Leu  
245 250 255

Asn Ser Val Ala Pro Ala Ile Val Glu Val Lys Gly Val His Gln Phe  
260 265 270

Asp Trp Leu Thr Arg Glu Asn Val Pro Val Leu Glu Ala Val Glu Ser  
275 280 285

His Asn Gly Val Arg Asp Tyr Tyr His Gly Asn His Val Ala Gly Ala  
290 295 300

Asn Leu Thr Glu Thr Pro Arg Thr Phe Ala Ser Lys Leu Gln Ser  
305 310 315 320

Arg Ser Pro Lys Tyr Ile Ser Leu Leu Asn His Leu Arg Ile Tyr Ile  
325 330 335

Pro Glu Leu Phe Pro Asn Leu Asp Lys Val Val Phe Leu Asp Asp Asp  
340 345 350

Ile Val Val Gln Gly Asp Leu Thr Pro Leu Trp Asp Val Asp Leu Gly  
355 360 365

Gly Lys Val Asn Gly Ala Val Glu Thr Cys Arg Gly Glu Asp Glu Trp  
370 375 380

Val Met Ser Lys Arg Leu Arg Asn Tyr Phe Asn Phe Ser His Pro Leu  
385 390 395 400

Ile Ala Lys His Leu Asp Pro Glu Glu Cys Ala Trp Ala Tyr Gly Met  
405 410 415

Asn Ile Phe Asp Leu Gln Ala Trp Arg Lys Thr Asn Ile Arg Glu Thr  
420 425 430

Tyr His Ser Trp Leu Arg Glu Asn Leu Lys Ser Asn Leu Thr Met Trp  
435 440 445

Lys Leu Gly Thr Leu Pro Pro Ala Leu Ile Ala Phe Lys Gly His Val  
450 455 460

His Ile Ile Asp Ser Ser Trp His Met Leu Gly Leu Gly Tyr Gln Ser  
465 470 475 480

Lys Thr Asn Ile Glu Asn Val Lys Lys Ala Ala Val Ile His Tyr Asn  
485 490 495

## 14-03 WO.sequence listing.txt

Gly Gln Ser Lys Pro Trp Leu Glu Ile Gly Phe Glu His Leu Arg Pro  
 500 505 510

Phe Trp Thr Lys Tyr Val Asn Tyr Ser Asn Asp Phe Ile Lys Asn Cys  
 515 520 525

His Ile Leu Glu  
 530

<210> 29  
 <211> 1608  
 <212> DNA  
 <213> *Arabidopsis thaliana*

<400> 29	
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tctctactct tccttacttt tcctctccga ttctgttttgc ttctctccac cggtgatact	180
atcgacggcg atccctctcc ttgctcctct ctgtgttgc tggggaaaag actaaagcca	240
aagcttttag gaagaagggt tgattctggt aatgttccag aagctatgta ccaagtttta	300
gaacagccctt taagcgaaca agaactcaa ggaagatcag atatacctca aacacttcaa	360
gatttcatgt ctgaagtcaa aagaagcaaa tcagacgcaa gagaatttgc tcaaaagcta	420
aaagaaaatgg tgacattgtat ggaacagaga acaagaacgg ctaagattca agagtattta	480
tatcgacatg tcgcatcaag cagcataccg aaacaacttc actgttttagc tcttaaacta	540
gccaaacgaaac actcgataaa cgcagccgc cgtctccagc ttccagaagc tgagcttgc	600
cctatgttgg tagacaacaa ctacttcac ttgttgc tttcagacaa tattcttgc	660
gcttcggttg tggctaagtc gttggttcaa aatgctttaa gacctcataa gatcggttctt	720
cacatcataa cggataggaa aacttatttc ccaatgcaag ctgggttctc attgcatcct	780
ctgtctccag caataattga ggtcaaggct ttgcatttcatt tcgattggtt atcgaaaggt	840
aaagtacccg ttttggaaagc tatggagaaa gatcagagag tgaggtctca attcagaggt	900
ggatcatcg ttattgtggc taataacaaa gagaaccgg ttgttgc tgctaagttta	960
caagctctca gccctaaata caactccttg atgaatcaca tccgtattca tctaccagag	1020
ttgtttccaa gcttaaacaa ggttgtgttt ctagacgatg acattgtgat ccaaactgat	1080
ctttcacctc tttggacat tgacatgaat ggaaaagtaa atggaggcagt ggaaacatgt	1140
agaggagaag acaagttgt gatgtcaaag aagttcaaga gttacctcaa cttctcgaat	1200
ccgacaattt ccaaaaaactt caatccagag gaatgtgcat gggcttatgg aatgaatgtt	1260
ttcgacctag cggcttggag gaggactaacataagctcca cttactatca ttggcttgc	1320

## 14-03 WO.sequence listing.txt

gagaacttaa aatcagacct gagttgtgg cagctggaa cttgcctcc tgggctgatt	1380
gcttccacg gtcatgtcca aaccatagat ccgttctggc atatgcttgg tctcgatac	1440
caagagacca cgagctatgc cgatgtgaa agtggcgctg ttgttcattt caatggaaga	1500
gctaaggcctt ggctggatat agcatttcct catctacgtc ctctctggc taagtatctt	1560
gattcttctg acagatttat caagagctgt cacattagag catcatga	1608

&lt;210&gt; 30

&lt;211&gt; 535

&lt;212&gt; PRT

&lt;213&gt; Arabidopsis thaliana

&lt;400&gt; 30

Met Gln Leu His Ile Ser Pro Ser Leu Arg His Val Thr Val Val Thr			
1	5	10	15
10	15		

Gly Lys Gly Leu Arg Glu Phe Ile Lys Val Lys Val Gly Ser Arg Arg			
20	25	30	
30			

Phe Ser Tyr Gln Met Val Phe Tyr Ser Leu Leu Phe Phe Thr Phe Leu			
35	40	45	
45			

Leu Arg Phe Val Phe Val Leu Ser Thr Val Asp Thr Ile Asp Gly Asp			
50	55	60	
60			

Pro Ser Pro Cys Ser Ser Leu Ala Cys Leu Gly Lys Arg Leu Lys Pro			
65	70	75	80
75	80		

Lys Leu Leu Gly Arg Arg Val Asp Ser Gly Asn Val Pro Glu Ala Met			
85	90	95	
95			

Tyr Gln Val Leu Glu Gln Pro Leu Ser Glu Gln Glu Leu Lys Gly Arg			
100	105	110	
110			

Ser Asp Ile Pro Gln Thr Leu Gln Asp Phe Met Ser Glu Val Lys Arg			
115	120	125	
125			

Ser Lys Ser Asp Ala Arg Glu Phe Ala Gln Lys Leu Lys Glu Met Val			
130	135	140	
140			

Thr Leu Met Glu Gln Arg Thr Arg Thr Ala Lys Ile Gln Glu Tyr Leu			
145	150	155	160
155	160		

Tyr Arg His Val Ala Ser Ser Ile Pro Lys Gln Leu His Cys Leu			
165	170	175	
175			

Ala Leu Lys Leu Ala Asn Glu His Ser Ile Asn Ala Ala Ala Arg Leu	
Page 51	

14-03 WO.sequence listing.txt  
180                    185                    190

Gln Leu Pro Glu Ala Glu Leu Val Pro Met Leu Val Asp Asn Asn Tyr  
195                    200                    205

Phe His Phe Val Leu Ala Ser Asp Asn Ile Leu Ala Ala Ser Val Val  
210                    215                    220

Ala Lys Ser Leu Val Gln Asn Ala Leu Arg Pro His Lys Ile Val Leu  
225                    230                    235                    240

His Ile Ile Thr Asp Arg Lys Thr Tyr Phe Pro Met Gln Ala Trp Phe  
245                    250                    255

Ser Leu His Pro Leu Ser Pro Ala Ile Ile Glu Val Lys Ala Leu His  
260                    265                    270

His Phe Asp Trp Leu Ser Lys Gly Lys Val Pro Val Leu Glu Ala Met  
275                    280                    285

Glu Lys Asp Gln Arg Val Arg Ser Gln Phe Arg Gly Gly Ser Ser Val  
290                    295                    300

Ile Val Ala Asn Asn Lys Glu Asn Pro Val Val Val Ala Ala Lys Leu  
305                    310                    315                    320

Gln Ala Leu Ser Pro Lys Tyr Asn Ser Leu Met Asn His Ile Arg Ile  
325                    330                    335

His Leu Pro Glu Leu Phe Pro Ser Leu Asn Lys Val Val Phe Leu Asp  
340                    345                    350

Asp Asp Ile Val Ile Gln Thr Asp Leu Ser Pro Leu Trp Asp Ile Asp  
355                    360                    365

Met Asn Gly Lys Val Asn Gly Ala Val Glu Thr Cys Arg Gly Glu Asp  
370                    375                    380

Lys Phe Val Met Ser Lys Lys Phe Lys Ser Tyr Leu Asn Phe Ser Asn  
385                    390                    395                    400

Pro Thr Ile Ala Lys Asn Phe Asn Pro Glu Glu Cys Ala Trp Ala Tyr  
405                    410                    415

Gly Met Asn Val Phe Asp Leu Ala Ala Trp Arg Arg Thr Asn Ile Ser  
420                    425                    430

14-03 WO.sequence listing.txt  
 Ser Thr Tyr Tyr His Trp Leu Asp Glu Asn Leu Lys Ser Asp Leu Ser  
 435                          440                          445

Leu Trp Gln Leu Gly Thr Leu Pro Pro Gly Leu Ile Ala Phe His Gly  
 450                          455                          460

His Val Gln Thr Ile Asp Pro Phe Trp His Met Leu Gly Leu Gly Tyr  
 465                          470                          475                          480

Gln Glu Thr Thr Ser Tyr Ala Asp Ala Glu Ser Ala Ala Val Val His  
 485                          490                          495

Phe Asn Gly Arg Ala Lys Pro Trp Leu Asp Ile Ala Phe Pro His Leu  
 500                          505                          510

Arg Pro Leu Trp Ala Lys Tyr Leu Asp Ser Ser Asp Arg Phe Ile Lys  
 515                          520                          525

Ser Cys His Ile Arg Ala Ser  
 530                          535

<210> 31

<211> 1086

<212> DNA

<213> Arabidopsis thaliana

<400> 31

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gacgaattca aaccccaaca aaactccgat tactccctc tcagagaatc tccaatgttc	180
cgttaacggcg aacaatgcag atcttccggc gaagattccg gcgtctgtaa ccctaatttc	240
gtcccacgtag ccatcactct cgacatcgat tacctccgtg gctcaatcgc agccgtcaat	300
tgcgatccccc agcactcaat gtgcctcaa agcgtttct tccacttcct cgtccctcc	360
jagtctcaaa acctagaatc tctgattcgt tctactttcc ccaaattgac gaatctcaaa	420
atttactatt ttgccccctga gaccgtacag tctttgattt catctccgt gagacaagcc	480
cttagagcaac cgttgaatta cgccagaaat tacttggcgg atctgctcga gccttgcgtt	540
atagcgagtca tctacttgga ttccggatctc gtcgtcgtcg atgatatcgt caagctttgg	600
aaaacgggtt taggccagag aacaatcggaa gctccggagt attgtcacgc gaatttcacg	660
aaataacttca ccggagggtt ttgggtcagat aagaggtta acgggacgtt caaaggggagg	720
taacccttggtt acttcaatac tgggttaatg gtgattgatt tgaagaagtg gagacaattt	780
ttggttcacga aacgaattga gaaatggatg gagattcaga agatagagag gatttatgag	840
ttggttctc ttccctccgtt tcttctggta tttgctggtc atgtagctcc gatttcacat	900

## 14-03 WO.sequence Listing.txt

cggtggaatc aacatgggct tggtggtgat aatgttagag gtagttgccg tgatttgcac 960  
tctggtcctg ttagttgct tcactggtca ggttgttgcg agccatggtt aagactcgat 1020  
tccaagcttc catgtccttt agacacattg tggcacccctt atgatttgcg taaacactcc 1080  
cattga 1086

<210> 32  
<211> 361  
<212> PRT  
<213> Arabidopsis thaliana  
<400> 32

Met His Trp Ile Thr Arg Phe Ser Ala Phe Phe Ser Ala Ala Leu Ala  
1 5 10 15

Met Ile Leu Leu Ser Pro Ser Leu Gln Ser Phe Ser Pro Ala Ala Ala  
20 25 30

Ile Arg Ser Ser His Pro Tyr Ala Asp Glu Phe Lys Pro Gln Gln Asn  
35 40 45

Ser Asp Tyr Ser Ser Phe Arg Glu Ser Pro Met Phe Arg Asn Ala Glu  
50 55 60

Gln Cys Arg Ser Ser Gly Glu Asp Ser Gly Val Cys Asn Pro Asn Leu  
65 70 75 80

Val His Val Ala Ile Thr Leu Asp Ile Asp Tyr Leu Arg Gly Ser Ile  
85 90 95

Ala Ala Val Asn Ser Ile Leu Gln His Ser Met Cys Pro Gln Ser Val  
100 105 110

Phe Phe His Phe Leu Val Ser Ser Glu Ser Gln Asn Leu Glu Ser Leu  
115 120 125

Ile Arg Ser Thr Phe Pro Lys Leu Thr Asn Leu Lys Ile Tyr Tyr Phe  
130 135 140

Ala Pro Glu Thr Val Gln Ser Leu Ile Ser Ser Val Arg Gln Ala  
145 150 155 160

Leu Glu Gln Pro Leu Asn Tyr Ala Arg Asn Tyr Leu Ala Asp Leu Leu  
165 170 175

Glu Pro Cys Val Lys Arg Val Ile Tyr Leu Asp Ser Asp Leu Val Val  
180 185 190

## 14-03 WO.sequence listing.txt

Val Asp Asp Ile Val Lys Leu Trp Lys Thr Gly Leu Gly Gln Arg Thr  
 195 200 205

Ile Gly Ala Pro Glu Tyr Cys His Ala Asn Phe Thr Lys Tyr Phe Thr  
 210 215 220

Gly Gly Phe Trp Ser Asp Lys Arg Phe Asn Gly Thr Phe Lys Gly Arg  
 225 230 235 240

Asn Pro Cys Tyr Phe Asn Thr Gly Val Met Val Ile Asp Leu Lys Lys  
 245 250 255

Trp Arg Gln Phe Arg Phe Thr Lys Arg Ile Glu Lys Trp Met Glu Ile  
 260 265 270

Gln Lys Ile Glu Arg Ile Tyr Glu Leu Gly Ser Leu Pro Pro Phe Leu  
 275 280 285

Leu Val Phe Ala Gly His Val Ala Pro Ile Ser His Arg Trp Asn Gln  
 290 295 300

His Gly Leu Gly Gly Asp Asn Val Arg Gly Ser Cys Arg Asp Leu His  
 305 310 315 320

Ser Gly Pro Val Ser Leu Leu His Trp Ser Gly Ser Gly Lys Pro Trp  
 325 330 335

Leu Arg Leu Asp Ser Lys Leu Pro Cys Pro Leu Asp Thr Leu Trp Ala  
 340 345 350

Pro Tyr Asp Leu Tyr Lys His Ser His  
 355 360

<210> 33

<211> 1038

<212> DNA

<213> Arabidopsis thaliana

<400> 33

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tccacagtca ctctcactga cctccccgct tttcgtgaag ctccggcggt tcgaaacggc 120

tgagaatgct ccaaaacgac atggataacct tcggatcacg aacacaaccc atcaatcatc 180

:acatcgcta tgactctcga cgcaatttac ctccgtggct cagtcgccgg cgtttctcc 240

tttctccaac acgcttcttg tcctgaaaac atcgaaaaac acttcatcgc cactcaccgt 300

:gcagcgccg atctccgccc cataatctcc tcaacattcc catacctaac ctaccacatt 360

## 14-03 WO.sequence listing.txt

taccattttg accctaacct cgtccgcagc	aaaatatctt cctctattcg tcgtgcttta	420
gaccaaccgt taaactacgc tcggatctac	ctcgccgatc tcctcccaat cgccgtccgc	480
cgcgtaatct acttcgactc cgatctcgta	gtcgtcgatg acgtggctaa actctggaga	540
atcgatctac gtcggcacgt cgtcggagct	ccggagact gtcacgcgaa tttcaactaac	600
tacttcactt caagattctg gtcgagtcaa	ggttacaaat cggcggtgaa agataggaaa	660
ccgtgttatt tcaacaccgg agtgatggtg	attgatctcg gaaaatggag agaaaggaga	720
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ggatcttgc ctccgtttct gtcggtttc	gccggagatg ttgagccggt ggagcatagg	840
tggaatcagc atggtcttgg tggtgataac	ttggaaggac tttgccggaa tttgcaccca	900
ggtccggtga gttgttgca ttggagcggg	aaaggaaac catggctaag gcttgactcg	960
agacgaccgt gtccgttggaa ttcgttatgg	gctccttatg atttgcattcg ttattcacccg	1020
ttgatctctg atagctga		1038

&lt;210&gt; 34

&lt;211&gt; 345

&lt;212&gt; PRT

&lt;213&gt; Arabidopsis thaliana

&lt;400&gt; 34

Met Ser Ser Leu Arg Leu Arg	Leu Cys Leu Leu Leu Leu Pro Ile
1 5	10 15

Thr Ile Ser Cys Val Thr Val	Leu Thr Asp Leu Pro Ala Phe Arg
20 25	30

Glu Ala Pro Ala Phe Arg Asn	Gly Arg Glu Cys Ser Lys Thr Thr Trp
35 40	45

Ile Pro Ser Asp His Glu His Asn Pro Ser Ile Ile His Ile Ala Met	
50 55	60

Thr Leu Asp Ala Ile Tyr Leu Arg Gly Ser Val Ala Gly Val Phe Ser	
55 70	75 80

Val Leu Gln His Ala Ser Cys Pro Glu Asn Ile Val Phe His Phe Ile	
85 90	95

Ila Thr His Arg Arg Ser Ala Asp Leu Arg Arg Ile Ile Ser Ser Thr	
100 105	110

Phe Pro Tyr Leu Thr Tyr His Ile Tyr His Phe Asp Pro Asn Leu Val	
115 120	125

## 14-03 WO.sequence Listing.txt

Arg Ser Lys Ile Ser Ser Ser Ile Arg Arg Ala Leu Asp Gln Pro Leu  
130 135 140

Asn Tyr Ala Arg Ile Tyr Leu Ala Asp Leu Leu Pro Ile Ala Val Arg  
145 150 155 160

Arg Val Ile Tyr Phe Asp Ser Asp Leu Val Val Val Asp Asp Val Ala  
165 170 175

Lys Leu Trp Arg Ile Asp Leu Arg Arg His Val Val Gly Ala Pro Glu  
180 185 190

Tyr Cys His Ala Asn Phe Thr Asn Tyr Phe Thr Ser Arg Phe Trp Ser  
195 200 205

Ser Gln Gly Tyr Lys Ser Ala Leu Lys Asp Arg Lys Pro Cys Tyr Phe  
210 215 220

Asn Thr Gly Val Met Val Ile Asp Leu Gly Lys Trp Arg Glu Arg Arg  
225 230 235 240

Val Thr Val Lys Leu Glu Thr Trp Met Arg Ile Gln Lys Arg His Arg  
245 250 255

Ile Tyr Glu Leu Gly Ser Leu Pro Pro Phe Leu Leu Val Phe Ala Gly  
260 265 270

Asp Val Glu Pro Val Glu His Arg Trp Asn Gln His Gly Leu Gly Gly  
275 280 285

Asp Asn Leu Glu Gly Leu Cys Arg Asn Leu His Pro Gly Pro Val Ser  
290 295 300

Leu Leu His Trp Ser Gly Lys Gly Lys Pro Trp Leu Arg Leu Asp Ser  
305 310 315 320

Arg Arg Pro Cys Pro Leu Asp Ser Leu Trp Ala Pro Tyr Asp Leu Phe  
325 330 335

Arg Tyr Ser Pro Leu Ile Ser Asp Ser  
340 345

<210> 35  
<211> 1056  
<212> DNA  
<213> Arabidopsis thaliana

## 14-03 WO.sequence listing.txt

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aaaattcaaa	gaagccccac	
agttttacaa	ttctgcagat	
tgccccttaa	tcgatgactc	180
cgagtccgac	gatgacgtgg	
tcgccaacc	aatcttctgc	
tcacgtcgag	ctgtccacgt	240
ggcgatgaca	ctcgacgccc	
cctacattcg	tggctcagtc	
gcccgtgttc	tctccgtcct	300
ccaacactct	tcttgcctcg	
aaaacattgt	tttccacttc	
gtcgccctcg	cttccgcccga	360
cgcttctcc	ttacgagcca	
ccatatcctc	ctcttccct	
tacttgatt	tcaccgtcta	420
cgtctcaac	gtctcctcg	
tctctgcct	tatctcctcc	
tctatccgct	ccgcactaga	480
ctgtccctta	aactacgcaa	
gaagctaccc	cggcatctc	
ctccctccct	gcgtccgccc	540
cgtcgctcac	ctagactccg	
atctgatcct	cgtcgacgac	
atagcaaaac	tcgcccac	600
agatctcggc	cgtgattcag	
tcctcgccgc	gccgaaatac	
tgcaacgcca	atttcacttc	660
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ggtctaattcc	gactctctct	
ttaaccttcg	ccgatcggaa	720
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gagtcatgg	gatcgatctt	
tcccggtggc	gcgaaggcgc	780
gtacacgtca	cgcacgaa	
agtggatggc	gatgcaaaag	
agaatgagaa	tttacgagct	840
tggttcgtta	ccaccgtttt	
tattggttt	tgccggttt	
attaaaccgg	ttaatcatcg	900
gtggaaccaa	cacggtttag	
gaggtataa	tttcagagga	
ctgtgttagag	atctccatcc	960
tggtcgggt	agtctgttc	
attggagtgg	gaaaggtaag	
ccatgggcta	ggcttgatgc	1020
tggtcggcct	tgtcctttag	
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cgcgttggat	tcttga	1056

&lt;210&gt; 36

&lt;211&gt; 351

&lt;212&gt; PRT

<213> *Arabidopsis thaliana*

&lt;400&gt; 36

Met	Ser	Gln	His	Leu	Leu	Leu	Ile	Leu	Leu	Ser	Leu	Leu	Leu	Leu
1				5			10				15			

His	Lys	Pro	Ile	Ser	Ala	Thr	Thr	Ile	Ile	Gln	Lys	Phe	Lys	Glu	Ala
			20				25				30				

Pro	Gln	Phe	Tyr	Asn	Ser	Ala	Asp	Cys	Pro	Leu	Ile	Asp	Asp	Ser	Glu
	35				40				45						

Ser	Asp	Asp	Asp	Val	Val	Ala	Lys	Pro	Ile	Phe	Cys	Ser	Arg	Arg	Ala
	50				55				60						

Val	His	Val	Ala	Met	Thr	Leu	Asp	Ala	Ala	Tyr	Ile	Arg	Gly	Ser	Val
65				70						75				80	

## 14-03 WO.sequence Listing.txt

Ala Ala Val Leu Ser Val Leu Gln His Ser Ser Cys Pro Glu Asn Ile  
85 90 95

Val Phe His Phe Val Ala Ser Ala Ser Ala Asp Ala Ser Ser Leu Arg  
100 105 110

Ala Thr Ile Ser Ser Ser Phe Pro Tyr Leu Asp Phe Thr Val Tyr Val  
115 120 125

Phe Asn Val Ser Ser Val Ser Arg Leu Ile Ser Ser Ser Ile Arg Ser  
130 135 140

Ala Leu Asp Cys Pro Leu Asn Tyr Ala Arg Ser Tyr Leu Ala Asp Leu  
145 150 155 160

Leu Pro Pro Cys Val Arg Arg Val Val Tyr Leu Asp Ser Asp Leu Ile  
165 170 175

Leu Val Asp Asp Ile Ala Lys Leu Ala Ala Thr Asp Leu Gly Arg Asp  
180 185 190

Ser Val Leu Ala Ala Pro Glu Tyr Cys Asn Ala Asn Phe Thr Ser Tyr  
195 200 205

Phe Thr Ser Thr Phe Trp Ser Asn Pro Thr Leu Ser Leu Thr Phe Ala  
210 215 220

Asp Arg Lys Ala Cys Tyr Phe Asn Thr Gly Val Met Val Ile Asp Leu  
225 230 235 240

Ser Arg Trp Arg Glu Gly Ala Tyr Thr Ser Arg Ile Glu Glu Trp Met  
245 250 255

Ala Met Gln Lys Arg Met Arg Ile Tyr Glu Leu Gly Ser Leu Pro Pro  
260 265 270

Phe Leu Leu Val Phe Ala Gly Leu Ile Lys Pro Val Asn His Arg Trp  
275 280 285

Asn Gln His Gly Leu Gly Gly Asp Asn Phe Arg Gly Leu Cys Arg Asp  
290 295 300

Leu His Pro Gly Pro Val Ser Leu Leu His Trp Ser Gly Lys Gly Lys  
305 310 315 320

Pro Trp Ala Arg Leu Asp Ala Gly Arg Pro Cys Pro Leu Asp Ala Leu

14-03 WO.sequence Listing.txt  
 325                   330                   335

Trp Ala Pro Tyr Asp Leu Leu Gln Thr Pro Phe Ala Leu Asp Ser  
 340                   345                   350

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<211> 1182  
<212> DNA  
<213> Arabidopsis thaliana

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aataatgggt ttagtaaact tggtcgttt atggaagctc cggagtatag aaacggcaag   180  
gagtgtgtat cttcatcagt gaacagagag aacttcgtgt cgtcttcttc tagttcta   240  
gatccttcgc ttgttcacat cgctatgact ttggactcag agtatctccg tggatcaatc   300  
gcagccgttc attctgttct tcgccacgcg tcttgcctt agaacgtctt cttccatttc   360  
atcgctgctg agtttgcactc tgcgagtcct cgtttctga gtcaactcgt gaggtcgact   420  
tttccttcgt tgaactttaa agtctacatt ttttagggaaat atacggatgt caatctcata   480  
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gatattcttgcgtt atcgaagtgt tgaacgagtc atttatcttgcgtt actcgatgt tataactgtg   600  
gatgatataca caaagctttg gaacacgggtt ttgaccgggtt cacgagtcat cggagctccg   660  
gagttttgtc acgcgaactt cactcagtat ttcaacttccg ggttctggtc agacccggct   720  
ttaccgggtc taatctcggg tcaaaagcct tgctatttca acacaggagt gatggatgt   780  
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cagaagaaga tgagaatcta cgatcttggaa tcattaccac cgtttctttt ggtgtttgcgtt   900  
ggtaatgttgcgtt aagctattga tcatagatgg aaccaacatg gtttaggagg agacaatata   960  
cgaggaagtt gtcggtcatt gcattctggt cctgtgagct tgttgcatttgcgtt gagttggtaaa   1020  
ggtaagccat gggtagact tgatgagaag aggcccttgcgtt cgttggatca tctttgggag   1080  
ccatatgatt tgtataagca taagattgag agagctaaag atcagtctct gcttgggttt   1140  
gcttctctgtt cggagttgac tgatgattca agtttttgtt gatggatgttgcgtt   1182

<210> 38  
<211> 393  
<212> PRT  
<213> Arabidopsis thaliana

<400> 38

Met Ser Ser Arg Phe Ser Leu Thr Val Val Cys Leu Ile Ala Leu Leu  
 1                   5                   10                   15

## 14-03 WO.sequence listing.txt

Pro Phe Val Val Gly Ile Arg Leu Ile Pro Ala Arg Ile Thr Ser Val  
20 25 30

Gly Asp Gly Gly Gly Gly Asn Asn Gly Phe Ser Lys Leu Gly  
35 40 45

Pro Phe Met Glu Ala Pro Glu Tyr Arg Asn Gly Lys Glu Cys Val Ser  
50 55 60

Ser Ser Val Asn Arg Glu Asn Phe Val Ser Ser Ser Ser Ser Asn  
65 70 75 80

Asp Pro Ser Leu Val His Ile Ala Met Thr Leu Asp Ser Glu Tyr Leu  
85 90 95

Arg Gly Ser Ile Ala Ala Val His Ser Val Leu Arg His Ala Ser Cys  
100 105 110

Pro Glu Asn Val Phe Phe His Phe Ile Ala Ala Glu Phe Asp Ser Ala  
115 120 125

Ser Pro Arg Val Leu Ser Gln Leu Val Arg Ser Thr Phe Pro Ser Leu  
130 135 140

Asn Phe Lys Val Tyr Ile Phe Arg Glu Asp Thr Val Ile Asn Leu Ile  
145 150 155 160

Ser Ser Ser Ile Arg Leu Ala Leu Glu Asn Pro Leu Asn Tyr Ala Arg  
165 170 175

Asn Tyr Leu Gly Asp Ile Leu Asp Arg Ser Val Glu Arg Val Ile Tyr  
180 185 190

Leu Asp Ser Asp Val Ile Thr Val Asp Asp Ile Thr Lys Leu Trp Asn  
195 200 205

Thr Val Leu Thr Gly Ser Arg Val Ile Gly Ala Pro Glu Tyr Cys His  
210 215 220

Ala Asn Phe Thr Gln Tyr Phe Thr Ser Gly Phe Trp Ser Asp Pro Ala  
225 230 235 240

Leu Pro Gly Leu Ile Ser Gly Gln Lys Pro Cys Tyr Phe Asn Thr Gly  
245 250 255

Val Met Val Met Asp Leu Val Arg Trp Arg Glu Gly Asn Tyr Arg Glu

14-03 WO.sequence Listing.txt  
260            265            270

Lys Leu Glu Gln Trp Met Gln Leu Gln Lys Lys Met Arg Ile Tyr Asp  
275            280            285

Leu Gly Ser Leu Pro Pro Phe Leu Leu Val Phe Ala Gly Asn Val Glu  
290            295            300

Ala Ile Asp His Arg Trp Asn Gln His Gly Leu Gly Gly Asp Asn Ile  
305            310            315            320

Arg Gly Ser Cys Arg Ser Leu His Pro Gly Pro Val Ser Leu Leu His  
325            330            335

Trp Ser Gly Lys Gly Lys Pro Trp Val Arg Leu Asp Glu Lys Arg Pro  
340            345            350

Cys Pro Leu Asp His Leu Trp Glu Pro Tyr Asp Leu Tyr Lys His Lys  
355            360            365

Ile Glu Arg Ala Lys Asp Gln Ser Leu Leu Gly Phe Ala Ser Leu Ser  
370            375            380

Glu Leu Thr Asp Asp Ser Ser Phe Leu  
385            390

<210> 39  
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<213> Arabidopsis thaliana

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accgtcgaa atggcttga tctgggtcg ttcgtggaag ctccggagta cagaaacggc	180
aaggagtgcg tgtctcaatc gttaacaga gaaaacttcg tgtcgtcttg cgacgcttcg	240
ttagttcatg tagctatgac gcttactcg gacttac gtggctcaat cgacgcccgt	300
cattcaatgc tccgccacgc gtcgtgtcca gaaaacgtct tcttccatct catcgctgca	360
gagtttggacc cggcgagtcc acgcgttctg agtcaactcg tccgatctac tttccgtcg	420
ctaaacctca aagtctacat tttccggaa gatacggta tcaaccttat ctcttcttca	480
atcagacaag ctttagagaa tccattgaac tatgctcgga actacctcg agatattctt	540
gatccatgcg tagacagagt cattaccta gactcggaca tcatcgtcgt cgatgacata	600
acaaagctt ggaacacgag tttgacaggg tcaagaatca tcggagctcc ggagtattgt	660

14-03 WO.sequence Listing.txt

cacgctaact tcacaaagta cttcacttca gtttctgtt ccgaccggc tttacccgt	720
ttcttcgtt gtcgaaagcc ttgttatttc aacacgggtg tgatgggtat ggatcttagtt	780
agatggagag aaggaaacta cagagaaaag cttgaaactt ggatgcagat acagaagaag	840
aagagaatct acgatttggg ttcttgcct ccgttcttc ttgtcttcgc agggAACGTT	900
gaagcaattt atcataggtt gaaccaacat gttttaggag gagacaatgt acgaggaagt	960
tgttaggtctt tgcataaagg accagttagt ttgttgcatt ggagtggtaa aggttaAGCCA	1020
tgggtgagac ttgtatgagaa gagaccgtgt ccgttggatc atttatggga accgtatgtat	1080
ttatatgagc ataagattga aagagctaaa gatcagtctt tgttcgggtt ctcttcttg	1140
tctgagttaa cagaagattc aagcttttc tga	1173

&lt;210&gt; 40

&lt;211&gt; 390

&lt;212&gt; PRT

&lt;213&gt; Arabidopsis thaliana

&lt;400&gt; 40

Met Arg Leu Arg Phe Pro Met Lys Ser Ala Val Leu Ala Phe Ala Ile			
1	5	10	15

Phe Leu Val Phe Ile Pro Leu Phe Ser Val Gly Ile Arg Met Ile Pro		
20	25	30

Gly Arg Leu Thr Ala Val Ser Ala Thr Val Gly Asn Gly Phe Asp Leu		
35	40	45

Gly Ser Phe Val Glu Ala Pro Glu Tyr Arg Asn Gly Lys Glu Cys Val		
50	55	60

Ser Gln Ser Leu Asn Arg Glu Asn Phe Val Ser Ser Cys Asp Ala Ser			
65	70	75	80

Leu Val His Val Ala Met Thr Leu Asp Ser Glu Tyr Leu Arg Gly Ser		
85	90	95

Ile Ala Ala Val His Ser Met Leu Arg His Ala Ser Cys Pro Glu Asn		
100	105	110

Val Phe Phe His Leu Ile Ala Ala Glu Phe Asp Pro Ala Ser Pro Arg		
115	120	125

Val Leu Ser Gln Leu Val Arg Ser Thr Phe Pro Ser Leu Asn Phe Lys		
130	135	140

Val Tyr Ile Phe Arg Glu Asp Thr Val Ile Asn Leu Ile Ser Ser Ser	
Page 63	

145                    150                    155                    160  
Ile Arg Gln Ala Leu Glu Asn Pro Leu Asn Tyr Ala Arg Asn Tyr Leu  
165                    170                    175  
  
Gly Asp Ile Leu Asp Pro Cys Val Asp Arg Val Ile Tyr Leu Asp Ser  
180                    185                    190  
  
Asp Ile Ile Val Val Asp Asp Ile Thr Lys Leu Trp Asn Thr Ser Leu  
195                    200                    205  
  
Thr Gly Ser Arg Ile Ile Gly Ala Pro Glu Tyr Cys His Ala Asn Phe  
210                    215                    220  
  
Thr Lys Tyr Phe Thr Ser Gly Phe Trp Ser Asp Pro Ala Leu Pro Gly  
225                    230                    235                    240  
  
Phe Phe Ser Gly Arg Lys Pro Cys Tyr Phe Asn Thr Gly Val Met Val  
245                    250                    255  
  
Met Asp Leu Val Arg Trp Arg Glu Gly Asn Tyr Arg Glu Lys Leu Glu  
260                    265                    270  
  
Thr Trp Met Gln Ile Gln Lys Lys Arg Ile Tyr Asp Leu Gly Ser  
275                    280                    285  
  
Leu Pro Pro Phe Leu Leu Val Phe Ala Gly Asn Val Glu Ala Ile Asp  
290                    295                    300  
  
His Arg Trp Asn Gln His Gly Leu Gly Gly Asp Asn Val Arg Gly Ser  
305                    310                    315                    320  
  
Cys Arg Ser Leu His Lys Gly Pro Val Ser Leu Leu His Trp Ser Gly  
325                    330                    335  
  
Lys Gly Lys Pro Trp Val Arg Leu Asp Glu Lys Arg Pro Cys Pro Leu  
340                    345                    350  
  
Asp His Leu Trp Glu Pro Tyr Asp Leu Tyr Glu His Lys Ile Glu Arg  
355                    360                    365  
  
Ala Lys Asp Gln Ser Leu Phe Gly Phe Ser Ser Leu Ser Glu Leu Thr  
370                    375                    380  
  
Glu Asp Ser Ser Phe Phe  
385                    390

## 14-03 WO.sequence listing.txt

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<211> 1056  
<212> DNA  
<213> Arabidopsis thaliana

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ccaactcttc ctgtttcag agaagccccg gctttcgaa acggtgatca atgcgggact 180  
cgtgaggctg atcagattca tatcgccatg actctcgaca caaactacct ccgtggcaca 240  
atggctgccg ttttgtctct cttcaacat tccacttgcc ctgaaaacct ctctttcat 300  
ttcctgtccc ttccctcattt cgaaaacgac ctttcacca gcatcaaatc aacctttcct 360  
tacctaaact tcaagattt tcaagtttgc ccaaaccctcg tcccgagcaa gatatcgaaa 420  
tccatcaggc aagcccttga tcagcctctt aactacgcaa gaatctacct cgccgatatc 480  
atcccttagca gcgttgcacag gatcatctac ttagactcag acctcggtgt ggtagacgac 540  
atagagaagc tgtggcatgt ggagatggaa ggtaaagtgg tggctgctcc cgagtactgc 600  
cacgcaaact tcacccatta tttcacaaga actttctggc cagacccggc attggtaaaa 660  
gttcttgaag gaaaacgtcc gtgttatttc aacacagggg tgatgggtgt ggatgtaaac 720  
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aagaggatat accatttggg atcattacct ccgtttctgc tgatattcgc cggtgatata 840  
aaagcggta atcataggtg gaaccagcat ggtctaggag gtgataattt cgaaggaaga 900  
tgtagaacgt tgcattccggg accgataagt cttcttact ggagtggaaa aggaaagcca 960  
tggtaagac tagattcaag gaagccttgt atcggtgatc atctatggc accgtatgtat 1020  
ctgtaccgtt catcaagaca ttcatcattaa gagtag 1056

<210> 42  
<211> 351  
<212> PRT  
<213> Arabidopsis thaliana

<400> 42

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1 5 10 15

Phe Ile Leu Leu Leu Val Thr Thr Thr Met Ala Val Arg Val Gly  
20 25 30

Val Ile Leu His Lys Pro Ser Ala Pro Thr Leu Pro Val Phe Arg Glu  
35 40 45

Ala Pro Ala Phe Arg Asn Gly Asp Gln Cys Gly Thr Arg Glu Ala Asp  
Page 65

50

55

## 14-03 WO.sequence listing.txt

60

Gln Ile His Ile Ala Met Thr Leu Asp Thr Asn Tyr Leu Arg Gly Thr  
65 70 75 80

Met Ala Ala Val Leu Ser Leu Leu Gln His Ser Thr Cys Pro Glu Asn  
85 90 95

Leu Ser Phe His Phe Leu Ser Leu Pro His Phe Glu Asn Asp Leu Phe  
100 105 110

Thr Ser Ile Lys Ser Thr Phe Pro Tyr Leu Asn Phe Lys Ile Tyr Gln  
115 120 125

Phe Asp Pro Asn Leu Val Arg Ser Lys Ile Ser Lys Ser Ile Arg Gln  
130 135 140

Ala Leu Asp Gln Pro Leu Asn Tyr Ala Arg Ile Tyr Leu Ala Asp Ile  
145 150 155 160

Ile Pro Ser Ser Val Asp Arg Ile Ile Tyr Leu Asp Ser Asp Leu Val  
165 170 175

Val Val Asp Asp Ile Glu Lys Leu Trp His Val Glu Met Glu Gly Lys  
180 185 190

Val Val Ala Ala Pro Glu Tyr Cys His Ala Asn Phe Thr His Tyr Phe  
195 200 205

Thr Arg Thr Phe Trp Ser Asp Pro Val Leu Val Lys Val Leu Glu Gly  
210 215 220

Lys Arg Pro Cys Tyr Phe Asn Thr Gly Val Met Val Val Asp Val Asn  
225 230 235 240

Lys Trp Arg Lys Gly Met Tyr Thr Gln Lys Val Glu Glu Trp Met Thr  
245 250 255

Ile Gln Lys Gln Lys Arg Ile Tyr His Leu Gly Ser Leu Pro Pro Phe  
260 265 270

Leu Leu Ile Phe Ala Gly Asp Ile Lys Ala Val Asn His Arg Trp Asn  
275 280 285

Gln His Gly Leu Gly Gly Asp Asn Phe Glu Gly Arg Cys Arg Thr Leu  
290 295 300

## 14-03 WO.sequence listing.txt

His Pro Gly Pro Ile Ser Leu Leu His Trp Ser Gly Lys Gly Lys Pro  
 305                   310                   315                   320

Trp Leu Arg Leu Asp Ser Arg Lys Pro Cys Ile Val Asp His Leu Trp  
 325                   330                   335

Ala Pro Tyr Asp Leu Tyr Arg Ser Ser Arg His Ser Leu Glu Glu  
 340                   345                   350

<210> 43

<211> 1098

<212> DNA

<213> *Arabidopsis thaliana*

<400> 43

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gatttaatgg	aagctccagc	atatcaaaac	ggtcttgatt	gctctgtttt	agccaaaaac	180
agactcttgt	tagcttgtga	tccatcagct	gttcataatag	ctatgactct	agatccagct	240
tacttgcgtg	gcacggtatac	tgcagttacat	tccatcctca	aacacacttc	ttgccctgaa	300
aacatcttct	tccacttcat	tgcttcgggt	acaagttagg	gttccctcgc	caagacccta	360
tcctctgttt	ttcccttctt	gagttcaaa	gtctataacct	ttgaagaaac	cacggtaag	420
aatctaatact	cttcttctat	aagacaagct	cttgatagtc	ctttgaatta	cgcaagaagc	480
tacttatccg	agattcttc	ttcgtgtgtt	agtcgagtga	tttatctcga	ttcggatgtg	540
attgtggtcg	atgatattca	gaaactatgg	aagatttctt	tatccgggtc	aagaacaatc	600
ggtgaccagg	agtattgcca	cgcaaatttc	accaaatact	tcacagatag	tttctgggtcc	660
gatcaaaaac	tctcgagtgt	cttcgattcc	aagactcctt	gttatttcaa	cacaggagtg	720
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atgaagattc	agaaaagaaga	taagagaatc	tacgaattgg	gttctttacc	accgtttctt	840
ctagtgtttg	gtggtgatat	tgaagctatt	gatcatcaat	ggaaccaaca	cggtctcggt	900
ggagacaaca	ttgtgagtag	ttgttagatct	ttgcacccctg	gtccggtag	tttgatacat	960
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tatctttggg	ctccttatga	tcttcacaag	tcacagaggc	agtatctca	atacaatcaa	1080
gagttagaaa	ttctttga					1098

<210> 44

<211> 365

<212> PRT

<213> *Arabidopsis thaliana*

<400> 44

## 14-03 WO.sequence listing.txt

Met Met Ser Gly Ser Arg Leu Ala Ser Arg Leu Ile Ile Ile Phe Ser  
1 5 10 15

Ile Ile Ser Thr Ser Phe Phe Thr Val Glu Ser Ile Arg Leu Phe Pro  
20 25 30

Asp Ser Phe Asp Asp Ala Ser Ser Asp Leu Met Glu Ala Pro Ala Tyr  
35 40 45

Gln Asn Gly Leu Asp Cys Ser Val Leu Ala Lys Asn Arg Leu Leu Leu  
50 55 60

Ala Cys Asp Pro Ser Ala Val His Ile Ala Met Thr Leu Asp Pro Ala  
65 70 75 80

Tyr Leu Arg Gly Thr Val Ser Ala Val His Ser Ile Leu Lys His Thr  
85 90 95

Ser Cys Pro Glu Asn Ile Phe Phe His Phe Ile Ala Ser Gly Thr Ser  
100 105 110

Gln Gly Ser Leu Ala Lys Thr Leu Ser Ser Val Phe Pro Ser Leu Ser  
115 120 125

Phe Lys Val Tyr Thr Phe Glu Glu Thr Thr Val Lys Asn Leu Ile Ser  
130 135 140

Ser Ser Ile Arg Gln Ala Leu Asp Ser Pro Leu Asn Tyr Ala Arg Ser  
145 150 155 160

Tyr Leu Ser Glu Ile Leu Ser Ser Cys Val Ser Arg Val Ile Tyr Leu  
165 170 175

Asp Ser Asp Val Ile Val Val Asp Asp Ile Gln Lys Leu Trp Lys Ile  
180 185 190

Ser Leu Ser Gly Ser Arg Thr Ile Gly Ala Pro Glu Tyr Cys His Ala  
195 200 205

Asn Phe Thr Lys Tyr Phe Thr Asp Ser Phe Trp Ser Asp Gln Lys Leu  
210 215 220

Ser Ser Val Phe Asp Ser Lys Thr Pro Cys Tyr Phe Asn Thr Gly Val  
225 230 235 240

Met Val Ile Asp Leu Glu Arg Trp Arg Glu Gly Asp Tyr Thr Arg Lys  
245 250 255

## 14-03 WO.sequence listing.txt

Ile Glu Asn Trp Met Lys Ile Gln Lys Glu Asp Lys Arg Ile Tyr Glu  
 260 265 270

Leu Gly Ser Leu Pro Pro Phe Leu Leu Val Phe Gly Gly Asp Ile Glu  
 275 280 285

Ala Ile Asp His Gln Trp Asn Gln His Gly Leu Gly Gly Asp Asn Ile  
 290 295 300

Val Ser Ser Cys Arg Ser Leu His Pro Gly Pro Val Ser Leu Ile His  
 305 310 315 320

Trp Ser Gly Lys Gly Lys Pro Trp Val Arg Leu Asp Asp Gly Lys Pro  
 325 330 335

Cys Pro Ile Asp Tyr Leu Trp Ala Pro Tyr Asp Leu His Lys Ser Gln  
 340 345 350

Arg Gln Tyr Leu Gln Tyr Asn Gln Glu Leu Glu Ile Leu  
 355 360 365

<210> 45

<211> 1026

<212> DNA

<213> *Arabidopsis thaliana*

<400> 45

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gaaaacgatg aagatttcgt ttgttcagac aaagccatcc acgtggcaat gaccttagac	180
acagcttacc tccgtggctc aatggccgtg attctctccg tcctccaaca ctcttcttgt	240
cctcaaaaaca ttgtttcca cttcgtcaact tcaaaacaaa gccaccgact ccaaaactac	300
gtcgttgctt cttttcccta cttgaaattc cgaatttacc cttacgacgt agccgccatc	360
tccggcctca tctcaacctc catccgctcc gcgcctagact ctccgctaaa ctacgcaaga	420
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ttagccgcgc ctgagttactg caacgcaaac ttcacgactt actttactcc gacgtttgg	600
tcaaaccctt ctctctccat cacactatcc ctcaaccgcc gtgctacacc gtgttacttc	660
aacaccggag tgatggtcat cgagttaaag aaatggcgag aaggagatta cacgaggaag	720
atcatagagt ggatggagtt acaaaaacgg ataagaatct acgagttagg ctctttacca	780
ccgtttttac ttgtcttcgc cgaaaaacata gctccggtag atcaccggtg gaacccaacac	840

## 14-03 WO.sequence listing.txt

ggtttaggag gagataattt tagaggactg tgtcgagatt tgcattcagg tccagtgagt 900  
ttgttcatt ggagtggaa aggaaagcca tggtaaggt tagatgatgg tcgacccgc 960  
ccgcttgatg cacttgggt tccatatgtat ttgttagagt cacggttcga ccttatcgag 1020  
agttaa 1026

<210> 46  
<211> 341  
<212> PRT  
<213> *Arabidopsis thaliana*

<400> 46

Met His Ser Lys Phe Ile Leu Tyr Leu Ser Ile Leu Ala Val Phe Thr  
1 5 10 15

Val Ser Phe Ala Gly Gly Glu Arg Phe Lys Glu Ala Pro Lys Phe Phe  
20 25 30

Asn Ser Pro Glu Cys Leu Thr Ile Glu Asn Asp Glu Asp Phe Val Cys  
35 40 45

Ser Asp Lys Ala Ile His Val Ala Met Thr Leu Asp Thr Ala Tyr Leu  
50 55 60

Arg Gly Ser Met Ala Val Ile Leu Ser Val Leu Gln His Ser Ser Cys  
65 70 75 80

Pro Gln Asn Ile Val Phe His Phe Val Thr Ser Lys Gln Ser His Arg  
85 90 95

Leu Gln Asn Tyr Val Val Ala Ser Phe Pro Tyr Leu Lys Phe Arg Ile  
100 105 110

Tyr Pro Tyr Asp Val Ala Ala Ile Ser Gly Leu Ile Ser Thr Ser Ile  
115 120 125

Arg Ser Ala Leu Asp Ser Pro Leu Asn Tyr Ala Arg Asn Tyr Leu Ala  
130 135 140

Asp Ile Leu Pro Thr Cys Leu Ser Arg Val Val Tyr Leu Asp Ser Asp  
145 150 155 160

Leu Ile Leu Val Asp Asp Ile Ser Lys Leu Phe Ser Thr His Ile Pro  
165 170 175

Thr Asp Val Val Leu Ala Ala Pro Glu Tyr Cys Asn Ala Asn Phe Thr  
180 185 190

## 14-03 WO.sequence listing.txt

Thr Tyr Phe Thr Pro Thr Phe Trp Ser Asn Pro Ser Leu Ser Ile Thr  
 195 200 205

Leu Ser Leu Asn Arg Arg Ala Thr Pro Cys Tyr Phe Asn Thr Gly Val  
 210 215 220

Met Val Ile Glu Leu Lys Lys Trp Arg Glu Gly Asp Tyr Thr Arg Lys  
 225 230 235 240

Ile Ile Glu Trp Met Glu Leu Gln Lys Arg Ile Arg Ile Tyr Glu Leu  
 245 250 255

Gly Ser Leu Pro Pro Phe Leu Leu Val Phe Ala Gly Asn Ile Ala Pro  
 260 265 270

Val Asp His Arg Trp Asn Gln His Gly Leu Gly Gly Asp Asn Phe Arg  
 275 280 285

Gly Leu Cys Arg Asp Leu His Pro Gly Pro Val Ser Leu Leu His Trp  
 290 295 300

Ser Gly Lys Gly Lys Pro Trp Val Arg Leu Asp Asp Gly Arg Pro Cys  
 305 310 315 320

Pro Leu Asp Ala Leu Trp Val Pro Tyr Asp Leu Leu Glu Ser Arg Phe  
 325 330 335

Asp Leu Ile Glu Ser  
 340

<210> 47

<211> 1086

<212> DNA

<213> *Arabidopsis thaliana*

<400> 47

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gttttccgca	atgccgcccga	ttgcggccgc	gcagatatcg	attccggcgt	ctgttaaccct	240
tccttggtcc	acgtcgcgat	tactctcgat	ttcgagtacc	tgcgtggctc	aatcgccgccc	300
gttcattcga	ttctcaagca	ctcgctgtgt	cccgagagcg	tcttcttcca	tttcctcgtc	360
tccgagactg	acctagaatac	cttgattcggt	tcgacttttc	ccgaattgaa	attaaaggtt	420
tactacttcg	atccggagat	tgtacggacg	ctgatctcaa	cctccgtgag	acaagcgctc	480

## 14-03 WO.sequence listing.txt

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acgaaactgg	gatcgaaaac	gatcggagct	cccgagtact	gtcacgcgaa	cttcacaaag	660
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ggtccggta	gcttgcgttca	ttggtccgg	agtggtaaac	cgtggttcg	gttagattcg	1020
agacggcctt	gtccacttga	tactcttgg	gcaccttatg	atttgtatgg	acactactct	1080
cgctga						1086

&lt;210&gt; 48

&lt;211&gt; 361

&lt;212&gt; PRT

<213> *Arabidopsis thaliana*

&lt;400&gt; 48

Met	Leu	Trp	Ile	Met	Arg	Phe	Ser	Gly	Leu	Phe	Ser	Ala	Ala	Leu	Val
1				5				10						15	

Ile	Ile	Val	Leu	Ser	Pro	Ser	Leu	Gln	Ser	Phe	Pro	Pro	Ala	Glu	Ala
		20					25						30		

Ile	Arg	Ser	Ser	His	Leu	Asp	Ala	Tyr	Leu	Arg	Phe	Pro	Ser	Ser	Asp
	35				40				45						

Pro	Pro	Pro	His	Arg	Phe	Ser	Phe	Arg	Lys	Ala	Pro	Val	Phe	Arg	Asn
	50				55				60						

Ala	Ala	Asp	Cys	Ala	Ala	Asp	Ile	Asp	Ser	Gly	Val	Cys	Asn	Pro
	65				70			75					80	

Ser	Leu	Val	His	Val	Ala	Ile	Thr	Leu	Asp	Phe	Glu	Tyr	Leu	Arg	Gly
	85							90					95		

Ser	Ile	Ala	Ala	Val	His	Ser	Ile	Leu	Lys	His	Ser	Ser	Cys	Pro	Glu
	100						105						110		

Ser	Val	Phe	Phe	His	Phe	Leu	Val	Ser	Glu	Thr	Asp	Leu	Glu	Ser	Leu
	115						120					125			

14-03 WO.sequence listing.txt

Ile Arg Ser Thr Phe Pro Glu Leu Lys Leu Lys Val Tyr Tyr Phe Asp  
130 135 140

Pro Glu Ile Val Arg Thr Leu Ile Ser Thr Ser Val Arg Gln Ala Leu  
145 150 155 160

Glu Gln Pro Leu Asn Tyr Ala Arg Asn Tyr Leu Ala Asp Leu Leu Glu  
165 170 175

Pro Cys Val Arg Arg Val Ile Tyr Leu Asp Ser Asp Leu Ile Val Val  
180 185 190

Asp Asp Ile Ala Lys Leu Trp Met Thr Lys Leu Gly Ser Lys Thr Ile  
195 200 205

Gly Ala Pro Glu Tyr Cys His Ala Asn Phe Thr Lys Tyr Phe Thr Pro  
210 215 220

Ala Phe Trp Ser Asp Glu Arg Phe Ser Gly Ala Phe Ser Gly Arg Lys  
225 230 235 240

Pro Cys Tyr Phe Asn Thr Gly Val Met Val Met Asp Leu Glu Arg Trp  
245 250 255

Arg Arg Val Gly Tyr Thr Glu Val Ile Glu Lys Trp Met Glu Ile Gln  
260 265 270

Lys Ser Asp Arg Ile Tyr Glu Leu Gly Ser Leu Pro Pro Phe Leu Leu  
275 280 285

Val Phe Ala Gly Glu Val Ala Pro Ile Glu His Arg Trp Asn Gln His  
290 295 300

Gly Leu Gly Gly Asp Asn Val Arg Gly Ser Cys Arg Asp Leu His Pro  
305 310 315 320

Gly Pro Val Ser Leu Leu His Trp Ser Gly Ser Gly Lys Pro Trp Phe  
325 330 335

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340 345 350

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<210> 49  
<211> 1041  
<212> DNA

## 14-03 WO.sequence listing.txt

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ttcagaaaag ctccagcggt gttcaacaac ggcgacgaat gtctctcc tcggcggcg	180
tgcaatccgt cgttggtcca cgtggcgatc acgttagacg tagagtacct gcgtggctca	240
atcgcatcccg ttaactcgat cttcagcac tcggtgtgtc cagagacgt cttcttccac	300
ttcatcgccg tctccgagga aacaaacctg ttggagtgc tggtgagatc ggttttcccg	360
agactgaaat tcaatattta cgattttgcc cctgagacag ttcgtggttt gatttcttct	420
tccgtgagac aagctctcga gcagcctctg aactacgcta gaagctactt agcggatctg	480
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atcgctaagc tttggaaaac tagcctaggc tcgaggataa tcggagctcc ggagtattgt	600
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gagaggattt acgaacttagg ctcgcttcca ccgtttcttc tagtttctc cggcacgtg	840
gctcccatct ctcaccggtg gaaccagcat ggacttggtg gtgacaatgt tagaggtac	900
tgtcgtgatt tgcattctgg tcctgtgagt ttgctgcatt ggtctggtag tggcaagccc	960
tggataagac tcgattccaa acggccttgt cccttagacg cattatggac gccttacgac	1020
ttgtatcgac attcgattt a	1041

&lt;210&gt; 50

&lt;211&gt; 346

&lt;212&gt; PRT

&lt;213&gt; Arabidopsis thaliana

&lt;400&gt; 50

Met Leu Trp Ile Thr Arg Phe Ala Gly Leu Phe Ser Ala Ala Met Ala			
1	5	10	15

Val Ile Val Leu Ser Pro Ser Leu Gln Ser Phe Pro Pro Ala Ala Ala		
20	25	30

Ile Arg Ser Ser Pro Ser Pro Ile Phe Arg Lys Ala Pro Ala Val Phe		
35	40	45

Asn Asn Gly Asp Glu Cys Leu Ser Ser Gly Gly Val Cys Asn Pro Ser		
50	55	60

14-03 WO.sequence listing.txt  
Leu Val His Val Ala Ile Thr Leu Asp Val Glu Tyr Leu Arg Gly Ser  
65 70 75 80  
  
Ile Ala Ala Val Asn Ser Ile Leu Gln His Ser Val Cys Pro Glu Ser  
85 90 95  
  
Val Phe Phe His Phe Ile Ala Val Ser Glu Glu Thr Asn Leu Leu Glu  
100 105 110  
  
Ser Leu Val Arg Ser Val Phe Pro Arg Leu Lys Phe Asn Ile Tyr Asp  
115 120 125  
  
Phe Ala Pro Glu Thr Val Arg Gly Leu Ile Ser Ser Ser Val Arg Gln  
130 135 140  
  
Ala Leu Glu Gln Pro Leu Asn Tyr Ala Arg Ser Tyr Leu Ala Asp Leu  
145 150 155 160  
  
Leu Glu Pro Cys Val Asn Arg Val Ile Tyr Leu Asp Ser Asp Leu Val  
165 170 175  
  
Val Val Asp Asp Ile Ala Lys Leu Trp Lys Thr Ser Leu Gly Ser Arg  
180 185 190  
  
Ile Ile Gly Ala Pro Glu Tyr Cys His Ala Asn Phe Thr Lys Tyr Phe  
195 200 205  
  
Thr Gly Gly Phe Trp Ser Glu Glu Arg Phe Ser Gly Thr Phe Arg Gly  
210 215 220  
  
Arg Lys Pro Cys Tyr Phe Asn Thr Gly Val Met Val Ile Asp Leu Lys  
225 230 235 240  
  
Lys Trp Arg Arg Gly Gly Tyr Thr Lys Arg Ile Glu Lys Trp Met Glu  
245 250 255  
  
Ile Gln Arg Arg Glu Arg Ile Tyr Glu Leu Gly Ser Leu Pro Pro Phe  
260 265 270  
  
Leu Leu Val Phe Ser Gly His Val Ala Pro Ile Ser His Arg Trp Asn  
275 280 285  
  
Gln His Gly Leu Gly Gly Asp Asn Val Arg Gly Ser Cys Arg Asp Leu  
290 295 300  
  
His Pro Gly Pro Val Ser Leu Leu His Trp Ser Gly Ser Gly Lys Pro  
305 310 315 320

## 14-03 WO.sequence listing.txt

Trp Ile Arg Leu Asp Ser Lys Arg Pro Cys Pro Leu Asp Ala Leu Trp  
325 330 335

Thr Pro Tyr Asp Leu Tyr Arg His Ser His  
340 345